HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

NOV. 1935

Sinus Disease

25 CENTS

If You Had an Accident

Traditions and Turkeys

GOAL TO GO!

IT'S do or die for the East Hill Panthers! And if "Five-Yard O'Donnell" has anything to do with it, this goal is as good as won!

This goal? Yes. And many another — thanks to those sturdy legs and that husky young body. And thanks to mother . . . whose wisdom and care in the selection of foods for proper diet have helped those legs — that young body — grow so sturdy and strong.

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HYGEIA, the Health Magazine, is published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Yearly subscription price, $2.50; for foreign postage add 75 cents. Volume 13, Number 11. Entered as second-class matter March 21, 1923, at the postoffice at Chicago, Ill., under the Acts of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1,103 Act of October 3, 1917, authorized March 21, 1923.

HYGEIA•

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THE HEALTH MAGAZINE

Published by the American Medical Association
Edited by Morris Fishbein, M.D.

Volume 13
Number 11

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Published monthly by the American Medical Association, 535 North Dearborn Street, Chicago. Subscription price $2.50 a year. Single copies 25 cents. Foreign subscriptions $3.25 a year.

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NOVEMBER 1935

Nation-Wide Health Survey

THOSE who have analyzed improvement in life expectancy in the United States during the last fifty years realize that most of the gain has been made by the control of infant mortality and the stamping out of infectious diseases. As a result of these accomplishments, life expectancy at birth has gradually advanced from something like 35 years in 1825 to 60 years in 1935. We realize that today the majority of people die of such conditions as heart disease, high blood pressure, brain hemorrhage, diseases of the kidney, cancer and similar chronic and disabling disorders. While we have rather accurate figures regarding causes of death we still lack any worthwhile statistics relative to the causes of chronic and disabling illnesses. It is generally known that the common cold and arthritic and rheumatic conditions bring about more absences from employment than any other causes; yet the exact facts have never been suitably determined for any considerable number of people.

NOW the United States Public Health Service is about to undertake a nation-wide survey of health, dealing particularly with chronic and disabling illness and physical impairment. Thirty thousand persons whose names are now on relief rolls will be employed to make a house-to-house canvass, involving people in nineteen states, which have been divided into five areas. The investigators will determine the names, ages, occupations and employment status of persons in the homes which they visit. They will find out how many of them have been vaccinated against smallpox and immunized against diph-

EDITORIAL

theria. They will determine how many illnesses have occurred in the family in the past year involving a disability lasting at least seven days and will also make a record of all instances in which members of the family have been hospitalized for medical care. The names of the hospitals and doctors will be recorded, as will the extent to which nursing service has been employed, and the diagnoses will be verified with the physicians. Information will also be obtained relative to other handicapping diseases or conditions such as asthma, kidney disturbances, digestive disorders, diabetes, epilepsy, goiter, hay fever and many similar conditions. The investigators will inspect the home as to its sanitary facilities and cost of maintenance and will determine, if possible, the income of the family. They will also endeavor to find out whether or not any member of the family holds membership in any sick-benefit organization and has been reimbursed by such an organization for disabling illness.

The survey is planned to include personal interviews with 750,000 families in ninety-five cities and towns, as well as an investigation of medical care in certain rural areas. From four to five months will be required for collecting the material, after which suitable analyses and interpretations will be published.

NEVER before has there been such a serious attempt to determine the facts regarding chronic and disabling illnesses or the extent to which such sicknesses are suitably cared for in the average American family. No doubt the facts will be important in relationship to all future considerations of plans providing medical care to the people and also in relationship to any governmental expansions in the way of measures for social security. It will be interesting to see how far Americans will enter wholeheartedly into this experiment. Incidentally, the value of the results will depend on the extent to which the investigators, the people and all those who are interested in the public health will cooperate in this effort.

The Pilgrim Physician

By CATHERINE CATE COBLENTZ

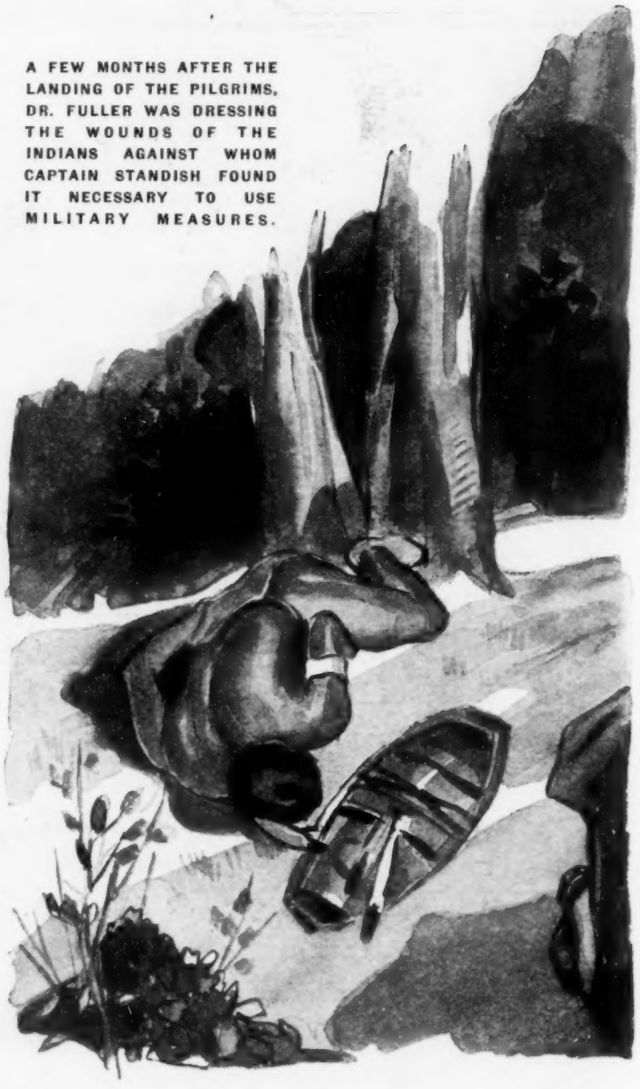
PERHAPS the United States has never realized the debt it owes to a physician. Many men have been called by various authors the Father of the Plymouth Colony; but if its paternal parent is a matter of dispute, no one has any doubt as to the physician who presided at its birth and, in spite of many complications, delivered for the world a living and eventually a lusty infant colony.

Dr. Samuel Fuller was the physician in charge, and probably no physician in this country has fought greater difficulties with greater courage. This Pilgrim physician was the son of a butcher and was born in Redenhall, in the county of Norfolk, England. Of his early life not much more is known. He was evidently a man of some means for he was among the more prominent men of the colony and was associated with its leaders. Before becoming a physician he was known as a serge maker. He was a deacon in the church and later a magistrate of Plymouth. As he was among the Pilgrims in Leyden, it would appear quite probable that he served his apprenticeship to some physician in Holland for the express purpose of caring for the Separatists who had settled there.

His age appears to have been about 40 at the time of sailing for the New World. He left behind him in Holland his wife and child for only the strongest were to make this venture westward. With him, however, on that journey, Dr. Fuller took a lad, William Button, who was intended apparently to become his assistant, a destiny to which he never attained for he died on the *Mayflower*. This was the only death at sea occurring among the group of Pilgrims though one of the seamen died "of a grievous disease" and "in a desperate manner." These statements, added to another which implies that this seaman was "proud" and "very profane," have led modern physicians to hazard that possibly his death was caused by delirium tremens.

On the *Mayflower* with Dr. Fuller there may have been a ship's surgeon, but history is not quite certain as to this, the only mention of such a person being a signature on a will made in the harbor.

There was one accouchement on the journey, Mistress Hopkins being delivered of a child, named appropriately Oceanus. But soon after the arrival in Cape Cod Harbor, a son, Peregrine was born to the doctor's sister, Mistress Susanna (Fuller) White. In harbor, Mistress Allerton was delivered of a stillborn child.



A FEW MONTHS AFTER THE LANDING OF THE PILGRIMS, DR. FULLER WAS DRESSING THE WOUNDS OF THE INDIANS AGAINST WHOM CAPTAIN STANDISH FOUND IT NECESSARY TO USE MILITARY MEASURES.

Once the *Mayflower* had come to anchor, misfortune swept full and fast on the Pilgrims. It seemed as though fate were determined that all these voyagers should perish; but fate seemed to reckon without the valiant Dr. Fuller.

THE first sickness was from eating "great mussles, very fat and full of sea pearls," which were picked up on the beach. "They made all sick that did eat, as well saylers as passengers; they caused to cast and scour, but they were soone well againe."

After this an "epidemic" seized on the little group of 102. As to its nature the physicians of today are not agreed for the accounts are so meager that such agreement would be exceedingly difficult.

There was an unusual amount of exposure, both among the men who went on exploring expeditions to choose a site for the location of the colony and among the women who went

on shore despite the weather and washed the accumulation of dirty clothing and linen.

The source material tells of "coughs and colds" and "vehement coughs," and records that these turned to scurvy, from which many died.

One physician is of the opinion that the Pilgrims died of acute pulmonary tuberculosis, due to the weakening effects of the long voyage and the exposure to cold and wet in the winter months following their arrival. He notes that the greater number of those who died were between 20 and 30 years and in their late teens; and that the percentage of mortality was much lower among the younger youths and the children. Death, he believes, was hastened by lack of proper care and feeding and by scurvy.

Another physician suggests that smallpox, typhus fever (plague) or a virulent form of typhoid may have seized on the early colony. It is known that previous to the coming of the *Mayflower* there had been a pestilence of a very infectious nature among the Indians in the country about Massachusetts Bay. It may be significant to note that on two different occasions an exploring party among the Pilgrims brought a store of buried corn to the ship, the last supply being obtained from two graves and from deserted Indian houses. The first death occurred seventeen days after the first corn was brought on board, and ten days after this death many were reported sick.

The first house that had been started was immediately turned into a hospital, even before its roof was thatched. Not only was the first house a hospital, but the ship likewise was a hospital. Dr. Fuller had his hands full, fighting with almost nothing against the Dark Antagonist. What he did we can only conjecture, but we know that bloodletting played an important part in the medical treatment of the time. Sassafras was a popular medicament, and the woods about Plymouth contained many such trees,

the roots of which were no doubt dug from the frozen ground.

But the cemetery on the hillside began to fill before the quarters on land were finished.

The thatch of the general house caught fire, and the burning grass fell on the beds inside. This happened on a night when two men who had been lost had finally returned to the thatched house with badly frozen feet.

William Bradford writing of those first few months says:

> But that which was most sadd and lamentable was that in 2 or 3 months time halfe of their company dyed, espetialy in Jan: & February, being ye depth of winter and wanting houses and other comforts; being infected with ye scurvie and other diseases, which this long vioage and thier inaccomodate conditions had brought upon them; so as ther dyed some Times 2 or 3 of a day in ye aforesaid Time, that of 100 & odd persons, scarce 50 remained.

Here is his record of the Pilgrim nurses:

> And of these (50 remaining) there was but 6 or 7 sound persons, who, to their great commendations be it spoken, spared no pains, night nor day, but with abundance of toyle and hazard of their owne health fetched them wood, made them fires, drest them meals, made their beads, washed their lothsome cloaths, cloathed and uncloathed them; in a word, did all ye homly and necessarie offices for them wch dainty and quesie stomachs cannot endure to hear named, and all this willingly and cheerfully.

Only William Brewster, not quite 60, yet the oldest among the group, and Miles Standish, the soldier, kept entirely well during the terrible winter. Unquestionably these two may be listed among the "nurses," while Dr. Fuller, well or ill, was doubtless unsparing in his efforts.

No sooner had the Pilgrims left the ship for the hastily erected houses than the crew, moving into their vacated quarters, also became ill, so that the departure of the *Mayflower* was delayed; and when it finally sailed in April, half the crew had died. If there was a ship's surgeon on board who cared for the crew he was no more able to conquer the illness among them than was Dr. Fuller among the colonists.

The half hundred Pilgrims who survived this illness faced successfully two succeeding seasons of famine, when for months their subsistence was clams, fish and an occasional bit of game and ground nuts. Truly they had reason to be thankful on that first Thanksgiving Day.

Dr. Fuller never suffered from lack of patients. A few months after the landing we find him dressing the wounds of the Indians against whom Captain Standish found it necessary to use military measures, and Edward Winslow, the doctor's new brother-in-law (William White having been among the first colonists to die), sent to him for medicines for the sick Massasoit.

Even the other colonies which were established soon after the settlement of Plymouth employed the physician for there is record of his labors at Salem, Dorchester and Charlestown; and the Governor of Salem wrote appreciatively of his services.

From Charlestown, Dr. Fuller bemoaned the need of "drugs and things fitting to work with."

Perhaps no record concerning this man of medicine is more enlightening as to his character than a mention made of a Plymouth church service where, as a deacon, he reminded the congregation of the blessedness of giving. Surely he, if any one, should have known!

Only a dozen years he served for in 1633 he was among twenty who died from an "infectious fever" which was brought to Plymouth.

In his will he forgave several patients of the debts which they owed him or instructed that such debtors pay the amounts to their own sons. He also directed that the sum which Roger Williams owed him for "phisick" be not collected. To the Church of God at Plymouth he left the first cow calf of his brown cow, "to be employed by the Deacon or Deacons of the said Church for the good of the said Church at the oversight of the Ruling Elders."

With the exception of a Bible which he gave his daughter he left his books to his son, Samuel, with instructions that payment be made for an "herballs" in his possession which belonged to John Chew of Plymouth in Old England.

After his death his wife Bridget took up the practice of midwifery.

Of the Pilgrim physician, Bradford writes, "A man godly and forward to do good, being much missed after his death." A more modern writer says, "He did the best he was able with the light he had and died doing his duty in an epidemic."

THE MODERN "MILKSOP"

By William Seaver Woods

THE DICTIONARIES will have to be revised. A "milksop," in their definition, is "an effeminate man," a pitiful person, a weak, flabby, lily-livered individual, with a retreating jaw, low vitality, lacking in vigor and "pep," spineless, feeble in bone and brawn and, in short, hopelessly unfitted for the rough-and-tumble of life.

The reason for this sad condition, it seems, is that he is a milk drinker. The old idea was that milk drinkers were weaklings. Babies drank milk; so if one drank it, one would become like a baby. Such was the logic, clear as daylight. But these are bad days for old ideas. They are being put to the acid test. Medical experts have been looking about a bit. The local doctors in a dairy county in New York State recently examined more than a thousand children, most of them under 5 years of age. About three fourths of the children were found to be getting two or more cupfuls of milk daily, while of the remainder about half received one cupful or less and the other half none at all. The next step was to see how the milk drinkers, or "milksops," compared in health with those who did not drink. More than one-third of the children receiving one cupful or less of milk daily were recorded in the "borderline" or "poor nutrition" class as against one fourth of those receiving two cupfuls or more daily. Similarly, underweight was most prevalent among children receiving the smaller milk ration.

Now we are beginning to see what a "milksop" is. In childhood, he is above the average in weight and general health. The "borderline" and underweight child is, we discover, the one who sops or, at any rate, sups less milk.

We can go on to sketch still more color and line into our picture of the milksop when we think of the value of milk in giving energy and vitality, in stiffening resistance to disease, in promoting bodily health and repair. If he is a thoroughgoing milksop, his mother began, long before he was born, to drink a quart of milk every day, and she continued it during his feeding period. This provided plenty of calcium for his bones and teeth. That is why he has a large powerful frame, a strong determined jaw, and two rows of firm dazzling teeth. He never knew what rickets was. Perhaps he never heard of vitamin A, but the milk he drank was rich with it, and it gave him that vim and pep that have warded off disease and filled him with the joy of living.

So that is the "milksop." At the lunch hour, walk past a huge skyscraper under construction and see some of the husky steel workers getting strength for another half day of wrestling with the big girders. More than a few of them will be upending quart bottles of milk to wash down the ham and cheese sandwiches. They have learned their science of nutrition from actual experience. Watch the brawny truck driver draw up at noon before a delicatessen store and get his paper bag of sandwiches and bottle of grade A milk. There are your milksops.

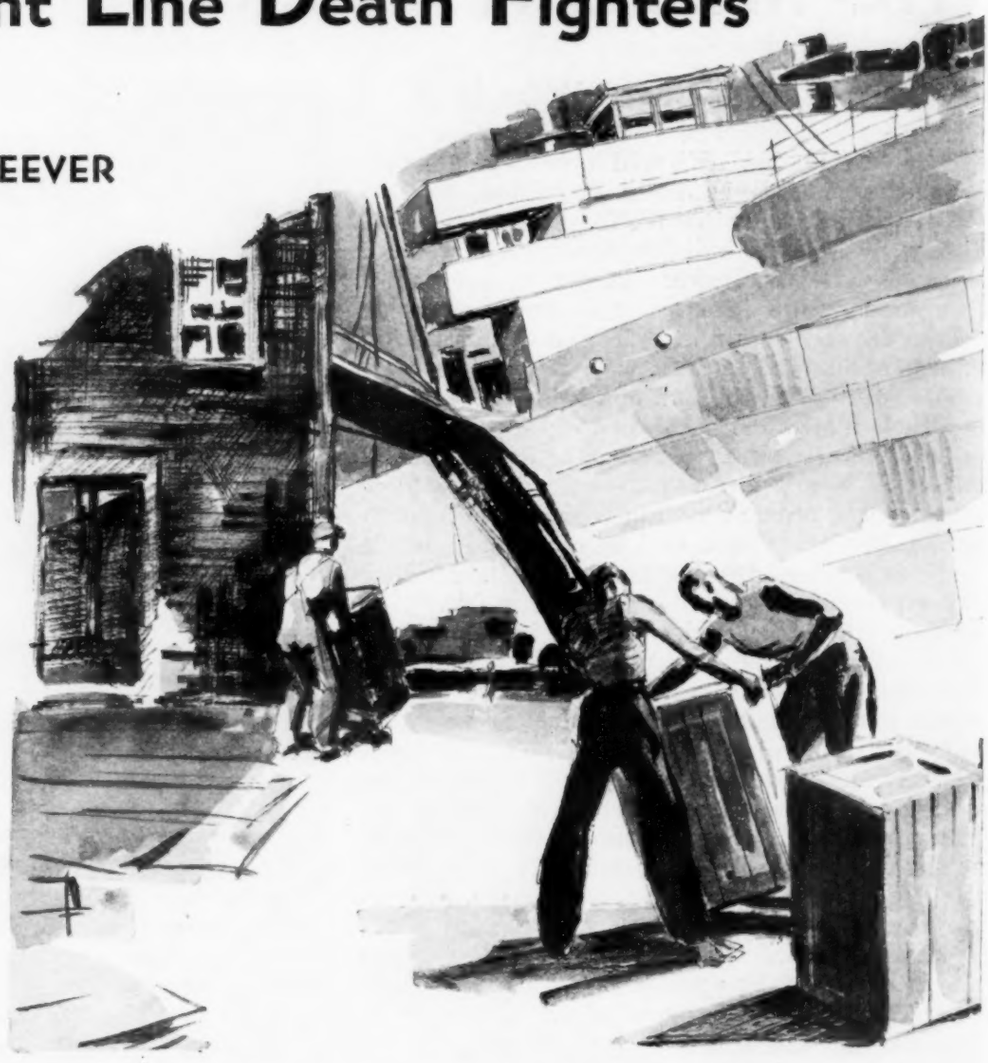
MANY OF THEM WILL BE UPENDING QUART BOTTLES OF MILK.

Who, then, is the "effeminate man" defined in the lexicons as a milksop, the flabby, spineless, "cowed" character who formerly bore that title? Why, in the light of modern scientific facts he is the one who did not have enough milk! The dull eye, scraggly teeth, weak will and feeble health are not signs of too much milk but of too little.

Campaigns urging people to "drink more milk" come and go, but the truth behind them is everlasting. It demands an eternal campaign that should know no end and no armistice. It is a fight in which the doctor and the nurse can do more than any one else. Milk can be used in food in a hundred ways and carry its benefits to old and young in every meal of the day. And instead of costing more, it actually costs less than foods that are of less health value. It is of great importance, then, at a time when the dollars have to be counted and when undernourishment and low resistance are prevalent. Here is a ready-made health campaign.

Our Front Line Death Fighters

By E. W. KEEVER



TO AVOID THE LOSS WHICH WOULD RESULT FROM QUARANTINE OF HIS WAREHOUSE HE DISPOSED OF HIS STOCK TO VARIOUS PARTS OF CUBA. WITH HIS STOCK WENT RATS CARRYING BUBONIC PLAGUE.

UNCLE SAM is enforcing a real Exclusion Act against the race of fleas. "No more foreign fleas will be admitted," he decreed some years ago. "And in particular," the order read, "we want no members whatever of the well known family named Xenopsylla cheopis."

It seems on first thought a strange and rather silly idea to range the vast power of the federal government against the entrance of anything so tiny and apparently harmless as a flea; but on second thought, which is usually better, we may find that X. cheopis is only apparently harmless. Let us look up the history of this unwanted insect and see what he has done and is doing to mankind. We will find that X. cheopis was the chief actor in the greatest drama of death ever played with the world as a stage.

The European première of this drama opened in the seaport of Messina, Sicily, in the year 1347. Europe was then living in that astonishing era of squalor and magnificence, of ignorance and learning, known to history as the middle ages. There were many universities, with thousands of students, yet the great mass of the people could not even write their own names. Perfumes and cosmetics were in common use among the wealthy, yet soap and sanitation were not even words. Learned scholars were plentiful, yet all had faith in marvels and superstitions.

Into this time and mode of living, on that fateful October day of 1347, there entered the harbor of Messina twelve galleys from Genoa. Their oars were shipped, and crew and cargo were set ashore. What those Genoese sailors brought to that rugged island whose seaport was Messina is told in the words of a local historian: "In their bones they bore so virulent a disease that any one who only spoke to them was seized by a mortal illness and in no manner could evade death. But not only those who had intercourse with them died, but also those who had touched or used any of their things."

The fatal galleys were soon expelled from Messina, but the death they had brought remained and flourished. Soon men feared each other so much, because of strange and sudden death, that if a son was attacked by the

disease he could not look for help even to his father. The dead lay forsaken in their dwellings, and those not yet stricken left the city to seek other refuge. But no other town would permit entry to the panic stricken refugees, who scattered over the island and died in great numbers.

From Sicily the mysterious death was carried to the mainland of Italy in a freight ship, the crew of which was infected. In Tuscany, eighty out of every hundred inhabitants died quickly. Soon the strange death was rushing through the streets of Florence, where Boccaccio was living at the time. Concerning it he wrote: "Great store there were who died in the streets, by day or night. In the villages roundabout, laborers and husbandmen, with their whole families, died miserably in out-houses, yea, in the open fields also, and likewise in the highways or their ploughed lands, by day or night, indifferently."

Thus the Black Death came to Europe in 1347. During the next two years it swept the continent like a forest fire, and its flames consumed between 25 and 40 million people. "Two hundred thousand market towns and villages were completely depopulated, and in the dwellings encumbered with corpses wild beasts took up their abode."

And the Black Death, the greatest catastrophe in the history of the world, was brought by a flea, was spread by a flea and was kept alive by a flea known today as X. cheopis.

But that was almost 600 years ago. Why should the federal government be so anxious to exclude X. cheopis today? Because the same death that rushed over Europe in 1348-1350 is still in the world today. Medieval Europe called it the Black Death. We call it bubonic plague, transmitted by X. cheopis from rats to men.

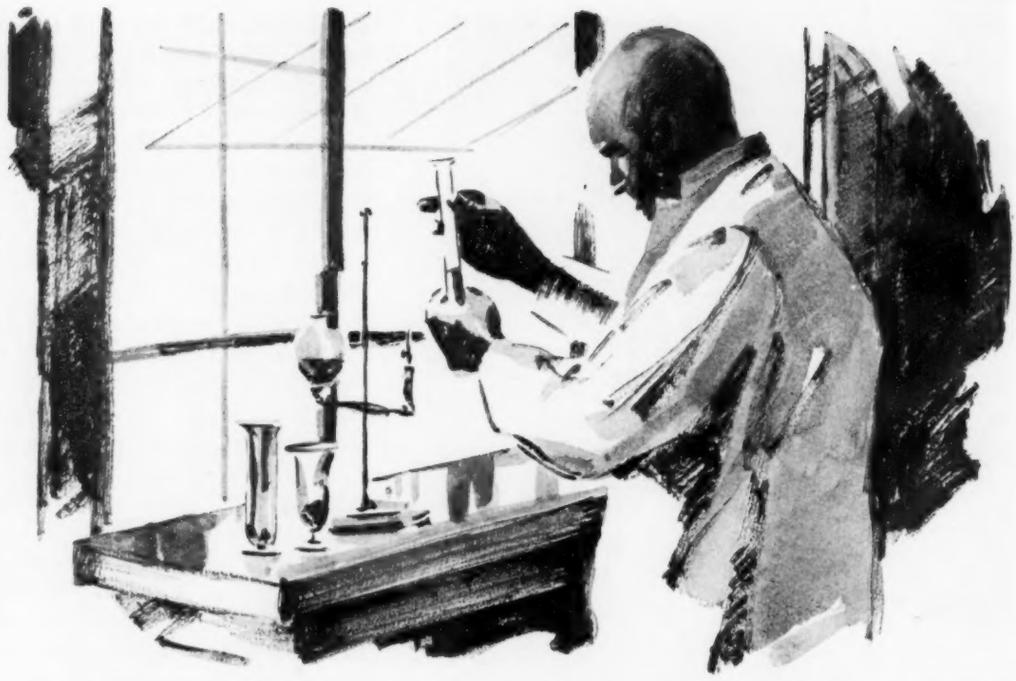
THE plague did not leave Europe after the great epidemic of 1348-1350. One hundred years later an epidemic in Venice carried off 300,000. In the early part of the seventeenth century, 165,000 died in London and 300,000 in Naples. A letter written from that unfortunate city during this attack said, "Could they only procure a little oil, so as not to die in the dark. Gold and silver no longer possess the power to buy bread." Even in the early eighteenth century new waves of pestilence, rolling in from the Far East, engulfed French Toulon and German Danzig.

By the end of the seventeenth century, however, the plague had practically disappeared from Europe. From about 1840 until after the World War the fire had quenched itself in Europe and was reduced to a sullen glow in the Orient. For 200 years it slowly withdrew to the East, and each outflaming on its retreat was less violent and more localized.

But see what happened. During the decade following the World War that process was suddenly reversed. Bubonic plague came back to ravage some of the old battle-grounds. Probably never again can this pestilence regain the violence of past centuries, but it would be killing its thousands in the United States today were it not for the exclusion law against X. cheopis, enforced by the U. S. Public Health Service as one of a hundred routine duties of these front line death fighters.

Now, with the loose strands of our design exposed, we can weave them into the finished tapestry. The Black Death rode into Europe on the back of a flea; but the flea rode in on the back of a rat. So there are four factors: the rat, the flea, bubonic plague and death. The rat and the flea are the cause; bubonic plague is the effect, and death is the result. It can be expressed thus: rats plus fleas equal death. How does this come about? The chain of events is as simple as it is inevitable.

Bubonic plague is primarily a disease of rats. It is an infectious disease, and its germ has been identified. These plague germs circulate in the blood of the sick rats. With the fatal germs in



ALL SERUMS, VACCINES AND ANTITOXINS MANUFACTURED BY PRIVATE FIRMS AND USED IN THE PREVENTION AND CONTROL OF DISEASE MUST BE TESTED FOR THEIR PURITY AND STRENGTH BEFORE THEY MAY BE USED IN THE BODIES OF AMERICAN CITIZENS.

the blood stream of the rat and the hungry X. cheopis on its skin, it is only a matter of time until X. cheopis, in satisfying his hunger, becomes himself infected with the germ of death. X. cheopis prefers rats; but if necessary, when his rat dies he can survive for a time as the guest of a man. Sick and hungry, the infected flea draws a tiny droplet of food from his human host, and the result of that microscopic meal, drunk in any port of the world, will set cables to the United States humming with the news—and send our Public Health Service into instant action.

In the early part of 1914 a plague infected flea bit an employee of a wholesale provision merchant in Havana. The employee sickened, not knowing why; but his employer, from previous experience, "smelled a rat." He concealed the illness of his helper, and to avoid the loss which would result from quarantine of his warehouse he disposed of his stock to various parts of Cuba. With his stock went plague sick rats. Thus the plague was secretly conveyed outside Havana.

The presence of the disease was confirmed by the authorities, and the Public Health Service immediately notified its representative in Havana to see that no passengers from Havana were allowed on outgoing vessels without special certificate and that all those from infected areas were excluded. All freight was to be passed only on special certificate; all vessels arriving at United States ports from Havana were to be fumigated immediately on the discharge of their cargoes, and especial care was to be taken that no ship rat should escape to the shore.

No plague came into this country from Havana. But were it not for the constant routine vigilance of these government death fighters, the plague would have free access to every port.

Routine vigilance is perhaps the best description of this phase of Public Health work. The duties of the service in plague suppression are principally to keep rats from plague countries out of the United States and to keep plague infected rats in this country down to the lowest possible number.

For example, in 1914 every ship landing at an American port from Asia, Africa or South America was fumigated for the destruction of rats. That meant the fumigation of more than 2,000 seagoing vessels; and in the general inspection and quarantine routine, 14,128 vessels, carrying 1½ million passengers, were inspected.

In San Francisco during the same year, 63,000 rats were caught, tagged as to place of capture, sent to the Public Health laboratory and examined for plague infection. Not one plague infected rat was found. Nevertheless the same vigilant routine was continued in 1915 and every year thereafter, being transferred in 1916 to the city department of health.

In 1914 the plague broke out in New Orleans, with thirty cases reported between June and September. On confirmation of the first case a fighting battalion of Public Health guardians swooped down on the city and initiated a plague suppressive campaign against rats and rat harbors which lasted for four years. In 1915 there was only one case of plague in New Orleans. In 1916 there was not a single case of human plague there; while India, for the last half of the same year, had to deal with 122,000 plague victims and a death toll of 95,000.

Bubonic plague never gives up. The disease seems to be chronic in rats, and under certain conditions at present unknown it becomes virulent. Plague suppressive measures in New

Orleans were ended in 1918. Two years later another outbreak occurred, with fifteen cases. In combating this attack the Public Health Service threw a force of 350 men into battle. During the twelve months following this small epidemic, 250,000 New Orleans rats were trapped and examined. Publicity, rat-proofing of buildings, improvement of garbage disposal methods, maritime and domestic quarantine, and summary destruction of rat harbors were the other measures instituted to clean up the infection. In bubonic plague the potential danger is so deadly that the death fighters must strike fast and hard, whether there is one case or thirty.

In the 1920 report of the U. S. Public Health Service it is noted that bubonic plague was on the increase throughout the world more than at any time during the past decade. The report states further, "Of all the epidemic diseases, the spread of plague is the most difficult to prevent. It is no difficult matter for rodents, hidden away in articles of freight, to be transported from an infected warehouse at some port not known to be infected, and carried to outside points, and the infection thus implanted in some other city or country not previously infected."

During that year the world spread of plague included Great Britain, France, Italy, Spain, Greece and Turkey, together with Asia, Africa and South America. The record shows 157,000 cases with 120,000 deaths in Asia, and about 30 cases in the United States. With the constant arrival of ships from the Orient, how many cases would we have had if there had been no death fighters on guard at our western ports?

WHAT was true of the world in 1920 is true today. Yet in 1933 there was no human plague in the United States. The reason for our safety is simple: routine vigilance, day by day and year by year on the part of the Public Health Service, to the end that the Black Death shall never scourge this country as it has scourged the rest of the world.

However, while plague suppressive measures are potentially of vast importance, they are only one small part of the duties assumed by our force of death fighters, numbering more than 5,000 men and women and expending approximately $12,000,000 annually.

Among other duties of the service are such jobs as the supervision and control of all the serums, vaccines, antitoxins and the like that are manufactured by private firms and used by physicians in the prevention and control of disease. All such products shipped in interstate commerce must be tested by the service for their purity and strength before being used in the bodies of American citizens.

Another important work, demanding a great deal of time, is the medical examination of all arriving aliens, to insure that no contagious or infectious disease enters our borders by immigration. So far as the prevention of entry of such diseases is concerned, the division of quarantine has jurisdiction over all ships and all persons, both citizen and alien, entering our ports from abroad.

The sheer volume of this work is amazing. During the fiscal year of 1933, for example, more than 10,000 vessels, 555,000 passengers and 852,000 seamen were inspected or examined on arrival at domestic ports. Besides the inspection of maritime traffic all persons entering from Canada and Mexico are likewise passed or rejected by our Public Health guardians. During 1933, inspections made at the Mexican border covered more than 8,000,000 entering people.

Whereas entry into a country could be made formerly only by sea or by land, today people also come in by air, thus affording a new means of entry to disease. The watchful eye of the service is as keen in spying out disease coming by air as by the more usual routes. In 1933 some 20,000 airplane passengers landing on our air fields from foreign ports were inspected and passed in or rejected.

What is the result of all this tiresome detail, this daily and hourly routine of vigilance? The result can be summed up in a single sentence: No quarantinable disease entered the United States from without during 1933. By "quarantinable disease" is meant such active menaces as plague, smallpox, cholera, typhus fever and leprosy.

Still we have not finished our count of the Public Health safety work. When you travel by train from one state to another, the Public Health Service guards the purity of your drinking water. When you visit a National Park the same front line fighters against disease have charge of the park sanitation. In Washington, D. C., is established the National Institute of Health, a research laboratory where Public Health scientists are devoting their lives to studies and investigations of vast importance to the health of the nation. The twenty-five marine hospitals, treating approximately 300,000 patients annually, are operated by the Public Health Service.

Day in and day out these front line death fighters are catching rats, peering into microscopes, examining prospective immigrants, testing the purity of drinking water, operating hospitals and enforcing health regulations. And for what purpose? So that the people of the United States will never be faced with the terrible death that rides on the back of a flea; so that no other disease can enter our midst from without, and so that the general public health will be improved year by year and decade by decade. It is a long, slow pull, this fight for better public health; but by and large our Public Health Service is equal to the job, and without their service, their routine vigilance, anything might happen at any time.

THE CRIPPLED CHILD

By Paul W. Giessler

SOME ONE has remarked that there appear to be fewer crippled children than in former years. This is probably due in part to the fact that the causes of crippling conditions are recognized and corrected early and therefore more effectively; but it is also due in part, I believe, to the fact that the cripple has been taught to adjust himself to his condition and to make a useful place for himself in life.

The factor that has played the biggest part in this adjustment has been the school for crippled children. The state of Minnesota is among the first to furnish opportunities for therapy, education and special instruction to the crippled child. This tends to give him the same opportunities that are afforded other children and helps him to forget that he is different from them. The state of Minnesota has a law which provides that any school district may establish one or more classes for crippled children who are residents of the state, provided there are at least five crippled children of school age to attend. Schoolrooms must be on the ground floor, and transportation must be furnished when needed. Minneapolis, St. Paul and Duluth have schools for crippled children, and there are, in addition, several small classes throughout the state. Dowling School is the largest school for crippled children in the state. It is a part of the Minneapolis public school system; and it is supported by Minneapolis taxpayers, supplemented by state aid, to the extent of $200 per pupil each year. It is open to any child of school age who can prove by physical examination that he is unable to attend the regular school or that he can be benefited by attendance at Dowling School and who can pass a mental test with a rating of at least 70 per cent. Dowling School provides all grades from kindergarten through the eighth grade, while high school students are cared for at Marshall High School or the Vocational High School. There are at present 240 handicapped, including cardiac patients, enrolled at Dowling, and 57 at Marshall and Vocational. These pupils are transported to and from school by the buses. They receive exactly the same instruction as children in the regular schools; and those who are eventually transferred to the regular schools are found to be on a par scholastically with the regular pupils. About 25 children are sufficiently improved each year to take their places among the normal children in their own school district.

The adjustment of a crippled child is, of course, made easier by any improvement in his physical condition. This improvement is accomplished at the school by physical therapy, occupational therapy, rest, heliotherapy, swimming, mild gymnastics and corrective work. These therapies are recommended by the physician in charge of the private cases or by the school physician, if the children do not have a private doctor.

THE school routine and the school atmosphere are normal. No unpleasant conversation about the physical disabilities is allowed; on the other hand, the handicap is referred to in a perfectly normal manner, but there is no pity evinced, no spoiling of the children, no sentimentality, nothing to make them conscious or ashamed of their handicaps. There was a time in the earlier years of the school when the least excuse was used for having a party, a movie or some sort of entertainment for the children, with presents and much food and candy. These projects are now being discouraged except at Christmas because they take too much time from the regular school work and instil in the children the idea that they shall expect life to be always that way. Such parties are given by persons who, because of pity, feel that they are doing something, while in reality they are only gratifying

THROUGH TRAINING IN USEFUL HANDWORK AN

their personal satisfaction and accomplishing nothing for the welfare of the child. One organization which used to give such parties is now furnishing six scholarships, worth $6 a month each, which enable some poorer children to attend high school.

THE same tendency to spoil and pamper the crippled child exists in some of the homes. It is perhaps natural and forgivable that the crippled child in the home should be waited on and given the best of everything, but such consideration tends to make him selfish and creates in the normal children in the same family a feeling of resentment against the cripple. An attempt is made to help the parents to see this situation in its true light. This is often difficult to do at first, but they gradually learn the better way. Every effort is made to teach self reliance by insisting that every child shall do everything for himself that his physical handicap will possibly permit, instead of being waited on by the attendants. It is a surprise to many parents to find that after only a few months in school their child can do much more than they ever thought possible, simply because no one there is allowed to do things for him.

Sports, both indoors and outdoors, are encouraged. New games are devised to meet the physical limitations. The children are supervised in their play so that they will engage in those activities of which they are more or less capable and not attempt the more strenuous ones in which they cannot possibly excel and which are often detrimental.

The children are early taught useful handwork, and through this means an attempt is made to locate any natural talent which may be developed into a possible means of earning a livelihood later. This is sometimes spoken of as occupational therapy, because it often teaches a child to use and control diseased muscles and bones; and, even when it does not give him a lucrative trade, it opens up before him the possibility of many hours of happiness. Each spring a conference of the teachers, physician and vocational workers is held to consider those children who are graduating from Dowling School. A study is made of each case, and advice is given as to the most beneficial course to follow.

THERE are still many persons who shrink from the sight of a cripple, especially a crippled child. I believe this reaction is often not so much a feeling of pity as it is a sense of their inability to help the unfortunate one. If they would visit such a school as Dowling often enough, they would soon lose their sentimentality and realize that the cripple is always ready to make his adjustment, provided his physically normal associates learn to overlook his physical handicap and so avoid, by any reaction on their part, inducing in him an assumption of unwarranted self consciousness and inferiority.

ATTEMPT IS MADE TO FIND ANY TALENT WHICH MAY BE DEVELOPED INTO A MEANS OF LIVELIHOOD LATER.

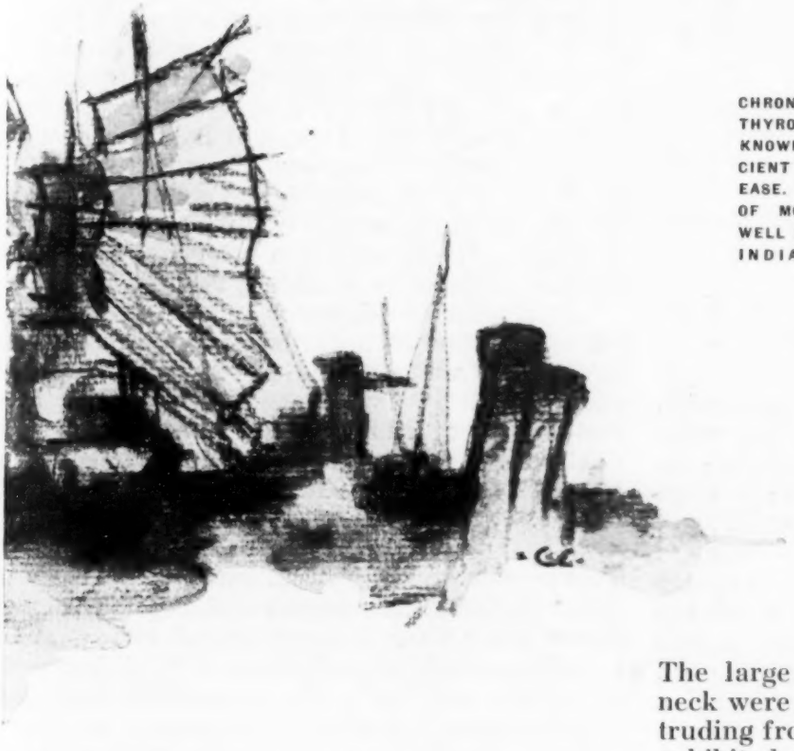
PREVENTION and TREATMENT

CHRONIC enlargement of the thyroid gland, commonly known as goiter, is an extremely ancient and widespread disease. It affects not only human beings but also fishes, birds and mammals in a wild and domestic state. Nontoxic or simple goiter, enlargement of the thyroid gland without any apparent effect on general health, has been an affliction of the human race for thousands of years. Long before the dawn of modern history it was well known in ancient China, India, Greece and Rome. Nor were the ancients entirely ignorant of the internal use of a remedy which had a remarkable curative effect on simple goiter. Many centuries before the chemical discovery of iodine by the French chemist Courtois in 1812, the ancient physicians had learned the value of the internal use of the ash of burned sea sponge in the treatment of goiter, not knowing that the substance was rich in iodine, the most important drug ever discovered in the treatment and prevention of nontoxic or simple goiter.

Although nontoxic or simple goiter was widely known and described in medical and nonmedical literature in ancient and modern times, toxic goiter, enlargement of the thyroid gland with excessive or abnormal function affecting the general health of the patient, was not definitely

# of TOXIC GOITER

By Solomon Ginsburg



CHRONIC ENLARGEMENT OF THE THYROID GLAND, COMMONLY KNOWN AS GOITER, IS AN ANCIENT AND WIDESPREAD DISEASE. LONG BEFORE THE DAWN OF MODERN HISTORY, IT WAS WELL KNOWN IN ANCIENT CHINA, INDIA, GREECE AND ROME.

recorded until the end of the eighteenth century had been reached.

In 1786 Caleb Hillier Parry, a brilliant young English physician, was the first to observe a case of goiter associated with severe disturbance of general health. The patient, a married woman, aged 37, caught cold shortly after childbirth and for a month suffered from acute rheumatic fever. Subsequently she became subject to more or less palpitation of the heart, greatly increased by bodily exercise and gradually increasing in force and frequency, so that each heart beat shook the whole chest wall. Her pulse was rapid and irregular. Twice or thrice she had been seized in the night with a sense of severe oppression in the chest and difficulty in breathing. She had frequent and violent pains about the lower part of the chest. Three months after the onset of her complaints she first noticed a small lump, about the size of a walnut, in the neck. This continued to enlarge until it reached both sides of the neck, forming a huge goiter. The large blood vessels on both sides of the neck were greatly distended; the eyes were protruding from their sockets, and the countenance exhibited an expression of agitation and distress, especially on muscular exertion, which was seldom encountered except in patients who were seriously ill. Vigorous medical treatment was carried out but failed to produce any relief, and the patient grew worse with symptoms of heart failure.

Parry was also the first physician to record what frequently happens in long-standing neglected cases of so-called simple goiter; namely, the change into toxic goiter. He describes the following case:

> Miss P. . . . had had an enlargement of the thyroid for more than twenty years, which has been much increased lately. The swelling began on the right side and is now nearly equal on the left but extending far upwards. It is not sore but occasionally uneasy. For the past eight or nine years she began to be subject to depression of spirits, frequent headaches, violent palpitation, extreme nervousness and moderately rapid heart action. She has taken Bark (quinine), Sponge (iodides), Calomel, and other medicine which made her faint but failed to cure her complaint.

MANY CENTURIES BEFORE THE CHEMICAL DISCOVERY OF IODINE, PHYSICIANS PRIZED THE SPONGE, BROUGHT IN BY FISHERMEN, FOR ITS VALUE IN THE TREATMENT OF GOITER.

Neither in the year 1786 when Parry saw his first patient with toxic goiter nor many years later when he was called to treat other patients was there known any treatment other than purely medical. Modern surgery had not yet been born. To attempt then to operate on a patient with toxic goiter, especially in its severe form, would have meant sure death of the patient from hemorrhage, shock or septic poisoning from the wound. To enable even the most experienced surgeons to obtain cures by operation for toxic goiter, ether and chloroform anesthesia had first to be discovered and introduced by Morton (1846) and Simpson (1847); antisepsis and asepsis had to be introduced by Pasteur and Lister (1865), and the thyroid operation had to be perfected by a number of expert surgeons headed by that master surgeon, Theodore Kocher of Bern, Switzerland. These achievements did not fully take place until more than a century after Parry observed his first authentic case of toxic goiter.

With the perfection of surgery for the operative treatment of toxic goiter a distinct advance in the solution of this important problem was achieved although its complete solution was by no means obtained. The superiority of expert operative treatment over purely medical treatment was soon demonstrated in numerous instances. Patients who had been suffering from severe toxic goiter and had failed to be cured by most expert medical treatment had shown complete and at times spectacular recovery after operation. Although in the early years of modern thyroid surgery the operative mortality was high, the cures frequently incomplete and the relapses by no means infrequent, greater improvement in operative technic aided by skilful medical management and the use of iodine has greatly lessened the mortality and produced a higher percentage of cures during recent years. This has resulted in a feeling of overweening confidence on the part of many surgeons and physicians that early diagnosis and an early operation is the one method of treatment for toxic goiter. However, careful study of medical literature and personal observations reveal the fact that despite great improvement in surgical technic, operation for toxic goiter still carries a mortality risk; cures after operation are not always complete; relapses still occur at times and, when relapses occur, patients do delay and at times refuse further operations. Hence, it behooves one to inquire whether there are other methods of a nonsurgical kind, efficient, dependable and safe, which in combination with skilful medical management can produce as good results as surgery without its attendant risks.

The answer to this query is, there is a potent, safe and dependable method present in radium and x-ray treatment judiciously and efficiently carried out by experienced physicians. This method is not entirely new. During the past thirty years, thousands of patients have been treated by radium and the x-rays with gratifying results.

The results of x-ray treatment for toxic goiter are recorded in numerous medical publications. These show that in experienced hands, good results were obtained in from 80 to 85 per cent of suitably selected patients, and the results of radium treatment are even better.

Although radium treatment for toxic goiter is insufficiently known among the profession and still less among the general public, who are under the impression that the chief use of radium is for the treatment of cancer, radium treatment is by no means a new method for the treatment of toxic goiter. Indeed, to the late Dr. Robert Abbe of New York belongs the honor of having been the first to use radium in a severe case of toxic goiter. June 10, 1904, he was consulted by a young woman, aged 21, who during a period of eighteen months had been experiencing progressive development of weakness, loss in weight, nervousness, irritability, rapid pulse and palpitation of the heart, tremor of the hands and body, excessive sweating and nervous diarrhea, enlargement of the thyroid gland and bulging eyes. Dr. Abbe felt that the patient was too ill to risk the danger of operation. He therefore applied radium treatment to the thyroid gland. The result, to quote Dr. Abbe's own words, was as follows:

For one month following the introduction of radium, the thyroid gland appeared a little more swollen, then the swelling diminished rapidly. Four months later the patient looks and feels entirely well; attends all her household duties, runs upstairs without palpitation, plays tennis every day and walks several miles; has no headaches, eyes are normal, and is free from tremor. Examination of the thyroid shows it to be one-sixth of its former bulk. Her neck has shrunken from 16½ inches to 15 inches.

For the next twenty-two years the patient was periodically examined by Dr. Abbe, who found her always in perfect health.

Gradually the great value of radium treatment in properly selected cases of toxic goiter led to its more extended use, and up to the present time more than 2,000 cases have been reported in the medical literature, with gratifying results. In a series of 1,500 patients reported by three radium specialists good results were obtained in over 90 per cent.

Nevertheless, not all cases of toxic goiter should at all times be treated by radium only. Operation still has its place. The physician must individualize; he must discriminate; he must make careful selection.

A few examples will illustrate the value of radium in the treatment of toxic goiter.

A young woman, aged 27 years, first came for radium treatment in August 1924. She complained of hoarseness, sleeplessness, weakness, nervousness, irritability, rapid pulse and palpitation of the heart, large swelling of the thyroid gland, bulging eyes, poor appetite and diarrhea. She had lost 30 pounds. For nearly four years she had been receiving medical treatment without much improvement. Finally her own medical attendant advised operation as a last resort, but she refused. Following radium treatment she made a perfect recovery, including the complete disappearance of the large goiter and the bulging eyes. She has remained perfectly well now for more than nine years.

Another patient, a girl, aged 15 years, first came for radium treatment in September 1929. At the age of 13, in 1926, she had noticed an enlargement of the thyroid gland, which slowly increased in size and was associated with nervousness, weakness, palpitation and rapid heart action, shortness of breath on exertion, marked tremor, excessive sweating and loss in weight. She was treated medically, but no improvement was apparent. In April 1929 she had her tonsils removed with the hope of removing a possible source of tonsillar focal infection as the underlying cause of the toxic goiter; but to the great disappointment of both the patient and the physician all the complaints increased in severity after the operation.

When she first came for radium treatment her face was flushed, the eyes were bulging, and the entire body was tremulous. The thyroid gland was greatly enlarged. The veins over the thyroid were markedly distended. The heart was enlarged, and its action was rapid. The blood pressure was high. The basal metabolism, or breathing test, was 97 per cent above normal. Following radium treatment her eyes went back to normal. The thyroid gland was reduced to normal size. The neck shrank from 15½ to 13 inches. The pulse and blood pressure became normal, and within a few months she had increased her weight from 100 to 135 pounds. She was observed for the next three years and remained in perfect health.

Even more interesting is the following case of toxic goiter in a woman of 43. She first applied for radium treatment in May 1930. Three years earlier she had undergone a thyroid operation for toxic goiter associated with weak and irregular heart action. A few months after the operation she felt improved, and for a year she enjoyed fair health although the irregular heart action never disappeared completely. In the summer of 1928 symptoms of toxic goiter reappeared. In the early part of 1930 she rapidly began to lose weight. The heart action became rapid and irregular. She was restless, irritable and depressed. She was reexamined by her attending surgeon, but he refused another operation and suggested radium treatment. This was promptly carried out with most happy results. She made a complete recovery, and the heart became entirely regular. In November 1930 the patient reported that both mentally and physically she was a different person, better in all ways than she had been in the last fifteen years; the attacks of morbidity had wholly disappeared, and she was entirely free from the nervous irritation that had been so acute and distressing. One year later her family physician reported that she was enjoying good health and had no recurrence of symptoms.

In more than half of the cases of toxic goiter the disease develops in patients with preexisting simple goiter. In the other half, symptoms of excessive or abnormal thyroid action are present for months and years before a toxic goiter becomes noticeable. Hence the most important means for prevention of toxic goiter are the prevention and treatment of every simple goiter and active treatment in the early phases or stages of excessive or abnormal thyroid activity before the goiter becomes apparent.

It is well to remember that operative treatment is no longer the only method of relief for toxic goiter; that medical treatment alone even by most experienced physicians frequently fails in the treatment of toxic goiter, and that radium or high voltage x-ray therapy, skilfully combined with expert medical management as soon as a diagnosis of toxic goiter is made, may offer results which are as good as those of operation and do not have its attendant risks.

[NOTE.—In the December issue, Dr. Ginsburg will discuss masked hyperthyroidism or thyrotoxicosis.]

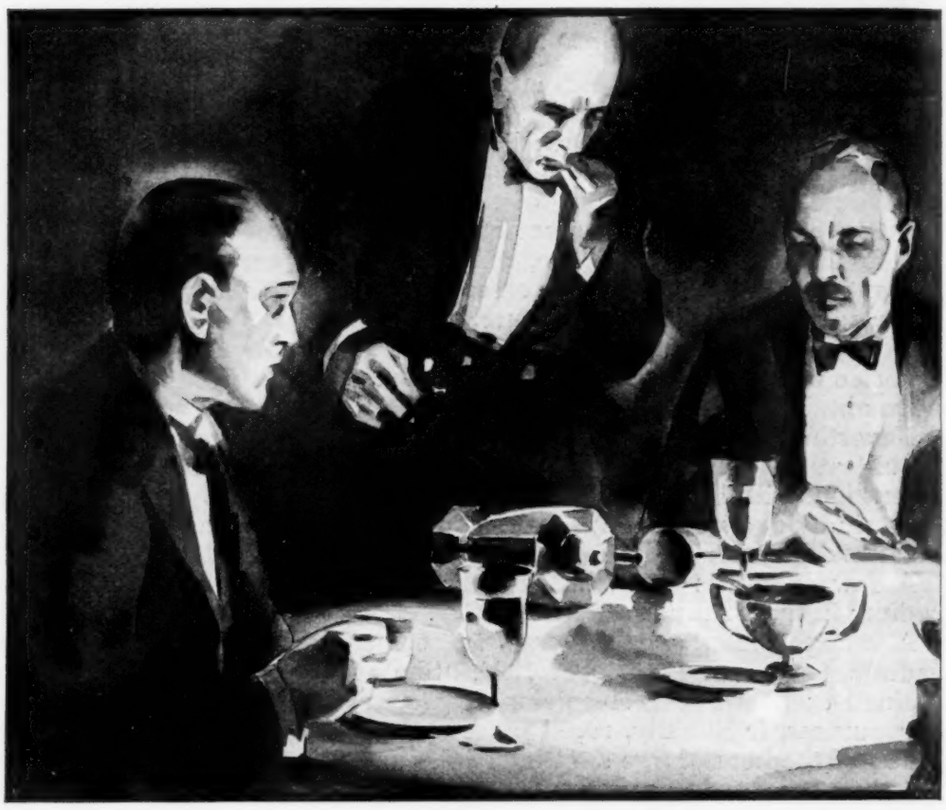
THE PROBLEM of the TIRED

Chapter VI
of

THE DOCTOR'S SCOTLAND YARD

By

Robert A. Kilduffe



WILKS COMMITTED THE UNPARDONABLE SIN FOR A BUTLER. HE DROPPED SOMETHING WHILE SERVING.

WHEN I first began to make notes of the incidents related by Dr. Trebor illustrating the part played by the laboratory and the clinical pathologist in the study of disease my intention was to make some use of them in the construction of mystery tales I was then grinding out for publication in the pulp magazines.

This idea, of course, was a natural consequence of the plan pursued by Trebor in comparing them to the search for clues and the various methods used in the identification of criminals, his criminal, of course, being disease and his clues the signs and traces, the symptoms, it displayed.

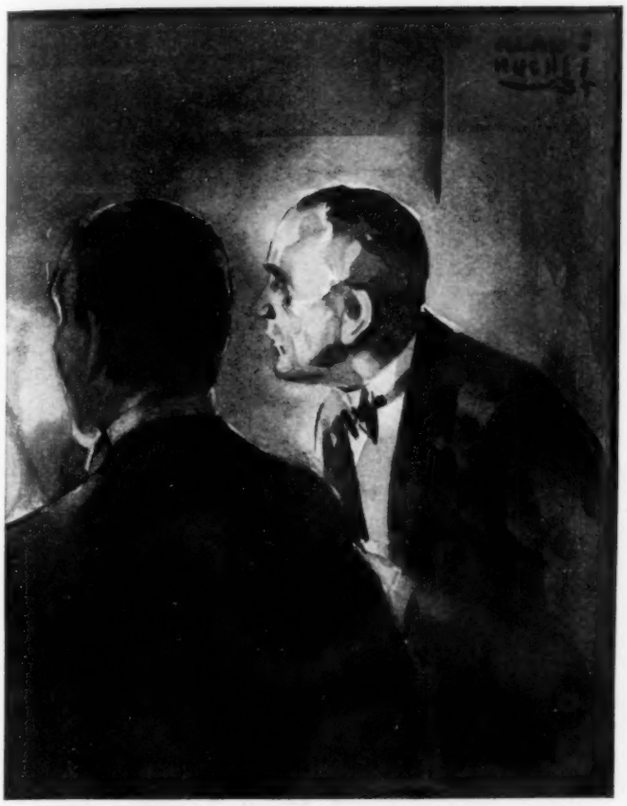
But his tales proved so interesting in themselves and, incidentally, gave Inspector Carey and me such a valuable insight into the work of the physician, as well as a better understanding of many things which we had heretofore regarded as more or less incomprehensible, that I decided to write them up for what they were, more or less everyday incidents common to the general practice of medicine.

One thing which especially surprised both Inspector Carey and me was the roundabout manner in which disease may make itself manifest. At first glance one would rather naturally suppose that if a man complained of pain in his stomach or of inability to digest his food or of headache, the trouble would be in his stomach or in his head, as the case might be.

Sometimes, of course, this is true. I can remember going to a doctor with some such complaint, receiving perhaps a digestive mixture and shortly afterward finding myself in good shape again. But I can also remember fellows with whom that sort of program did not produce results; and after listening to Trebor's tales I began to realize that what he spoke of, technically, as "the presenting symptom," that is, the thing that sent you to the doctor, the headache, for example, was sometimes only a devious manifestation of trouble in some other and often far distant part of the body which had no direct relation to the head itself. The whole point of the thing was, as Trebor more than once remarked and as I have doubtless more than once recorded, that "diagnosis is more a matter of perspiration than of inspiration."

I was attempting to tease him a bit one evening by pretending to believe that he spent his time "cramming" on detective stories in preparation for his evening chats with us. Carey, to whom this sort of fiction was a nuisance, mainly because, as he said, so many of the detectives in fiction either were too unreal to live or else had only to stand still to have a shower of clues drop all around them, took joking exception to my accusation.

BUTLER



"You'll never make me believe that," said he, "for Dr. Trebor hasn't used a butler yet—and how can you have a really classy mystery unless you have a butler? If he isn't to be the first suspect, he certainly has to be there to tell the chief constable that he personally locked the door and 'closed all the windows, sir,' not to mention stopping up the open fireplace."

"Perhaps," I remarked mildly, "his experience has not brought him into contact with any butlers."

"Well," said Trebor, laughing, "I must admit that I am not accustomed to being surrounded with hordes of butlers. That, however, does not make me any exception to the present company," he added slyly. "But, as a matter of fact, I once had occasion to know rather well, eventually, a butler whose acquaintance gives me an idea for tonight's story unless you fellows would prefer that I restrain these tales to adventures with hoi polloi—'common people' to you, Gavin."

"It's all right with me," said Carey grinning, "I've met a couple of butlers in my time."

"Any butler *you'd* know would probably be wanted by the police of seven cities," I said.

"As a matter of fact, one of them was wanted in several places," Carey admitted grinning, "and the other one I wanted myself. I must tell you about him some day. He had his points of interest. Speaking of butlers, though, I wish you had one; perhaps it would not be so long between drinks."

"What you need is a bartender, not a butler," I replied with just a tinge of sarcasm as I got up to attend to the duties thus thrust upon me. "Some of these nights I'm going to be too tired to wait on you, Carey. Won't that be awful?"

"If any of us were particularly credulous," interjected Dr. Trebor smiling, "this conversation might furnish an argument for telepathy, for that's just what I am going to tell you about."

"What! A tired butler?" I asked.

"Exactly," he replied. "We'll call this 'The Problem of the Tired Butler.'"

"O. K." said Carey. "You can start any time. There's been too much talk and too little action already." The latter part of this remark was accompanied by a somewhat meaning glance in my direction, which sent me posthaste to the cellaret.

The necessary libations having been poured, so to speak, Trebor started off.

"Odd as it may seem to you," he began with a nod in my direction, "I number among my friends one or two to whom a butler is not something in a scenario but a commonplace household fixture."

"Aha!" I retorted, recalling certain occasional imperfections in the management of our bachelor ménage, "now I understand why your expression reminds me now and then of some one passing through the slums."

"Any time you'd like him thrown out, Doctor," interjected Carey, "just let me know. Suppose you listen while we chaps who have been around talk over the butlers we've known," he added for my benefit.

"Deah! Deah!" said I. "You two chaps can compare notes on butlers, but after this you make your own drinks."

"If the shooting's over I'll go ahead," smiled Trebor. "When I was in college I had a classmate with whom I became quite friendly and, strangely enough, our friendship did not lapse afterward. We still get together now and then. You'd like him, I know. Now this fellow 'was born with a golden spoon in his mouth' and all that goes with it. He always had money and, on the principle of the old saying that 'them as has gits,' he still has, and he keeps on making it. He has a swanky place on Long Island *with* a butler. And it is this butler who furnishes the subject matter for tonight's story.

"Now, you know, habit is a very strong thing. I'm sure that the Inspector here gives everybody he meets the once-over. Perhaps he does not do it consciously, but I feel rather certain that his first reaction when he meets people is to size them up, so to speak, look them over and file them away in his memory for future reference. I remember well the first time I met him; I was glad I had a clear conscience for I swear

I felt as if he had me ticketed and placed in my proper category. How about it, Carey?"

"Well," admitted Carey with just a tinge of self consciousness, "you do rather get into some such habit. I'll bet you do it too, Doctor."

"Indeed I do," replied Trebor readily. "If you make a habit of that sort of thing you cannot divest yourself of it easily. You look for one sort of thing and I for another; but we both look, and so does Gavin here for still another reason. For who can tell when any of us will meet some one who is grist for our mill? As a matter of fact, observation is one of the most valuable traits a doctor can have. In many ways it's the meat of the situation, the crux of his skill and ability. That holds true for all of us. It's the little variations from the usual that interest you, Gavin, in your everlasting hunt for types. You, Inspector, are on the lookout for significant differences that, to you, suggest possibilities—and I am looking for the same things and, in a sense, for somewhat the same reasons.

"Well, almost the first thing I noticed on the occasion of this particular week-end visit was that there was a new butler. The one I had known had been in the family for years. I at once supposed that he had either died or retired, and naturally I asked about him.

" 'No, Wilks is still with us, I'm glad to say,' my friend replied. 'We'll miss the old boy when he goes; he was with my father. But he hasn't been himself somehow, and I made him take a rest.'

"I'm sorry to hear that," I replied. "He's a fine old chap with a typical old retainer sort of atmosphere about him. If you give me his address I'll manage to drop in and see him sometime.

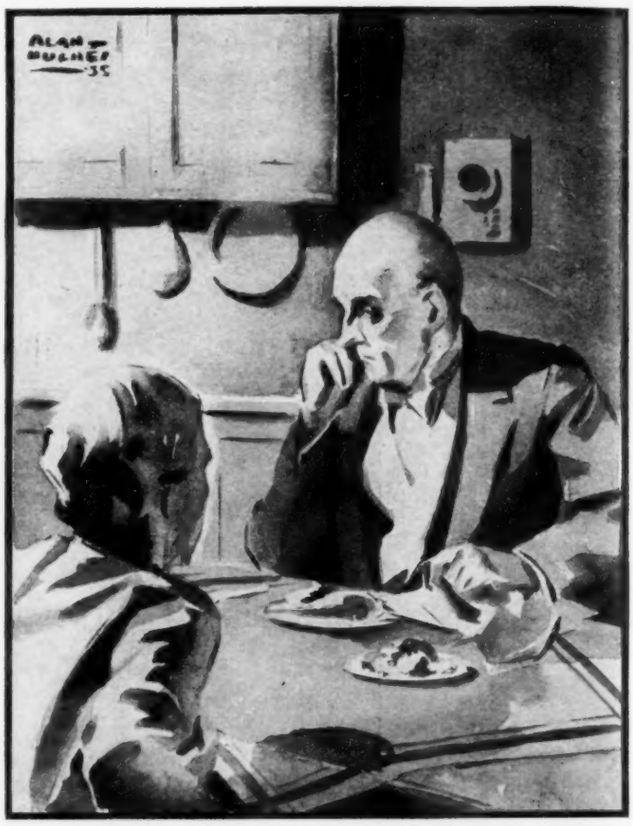
" 'That won't be difficult,' said my friend Brown. 'He isn't very far away. As a matter of fact, if he is following instructions he ought to be sitting out in the garden somewhere sunning himself. I don't think he is really sick, you know, he seemed just tired out, worn out, maybe. So I relieved him of all his duties, and he is just enjoying himself. He wouldn't be happy away from here, anyway. In fact, one of the reasons I brought you here this time was so that you could look him over. I wouldn't want anything to happen to him that could be prevented.'

"Well, if that's the case," said I, "suppose you tell me just what made you think he was out of sorts. What did he complain of first?

" 'He didn't complain of anything, confound his old bones,' Brown answered. 'I suppose it sounds rather simple, but he just acted as if he was tired to death. No, that's not quite right. I think now that the first thing I noticed was that he talked differently.'

"Just how do you mean?" I asked.

" 'It's rather difficult to describe,' Brown said thoughtfully. 'He seemed to be so slow in his utterance, and sometimes he seemed to have trouble pronouncing some words. But the strangest thing about it was that this came on in spells, so to speak.' "



NO MATTER WHAT SHE COOKED FOR HIM, HE DIDN'T REALLY ENJOY EATING IT. HE CHEWED IT AS IF IT WERE TASTELESS.

"I'd like to know whether he had the key to the wine cellar," said Carey to me aside.

"Yes, he did," Trebor answered, "but he was a teetotaler."

"Carey didn't mean to interrupt you, Trebor," I said sweetly. "He just thought he recognized the symptoms from experience."

"Well, it isn't a disease a fellow is very apt to get when *you* are pouring," Carey retorted. "Go ahead, Doctor."

"Well, from what I could make out by questioning Brown, what he meant by 'spells' was that in talking over the day's household arrangements with his master, Wilks began briskly enough; but the speech difficulty, and you must understand that it was not very marked, seemed to come on during the conversation. It didn't last long either. It was always a temporary affair, and it always became most noticeable when the conversation was of a considerable length.

"Another thing attracted Brown's attention too. This was that when Wilks was serving at the table he seemed to tire very easily even on this little exertion. As Brown put it, 'By the time he'd get half way around he'd move slower and slower, slowly enough for me to notice the difference anyway, especially if there were many

people to serve. But then he'd start out again with the next course just as briskly as ever.'"

"Well," I remarked, "from what you say about his having been in the family for ages he must have been pretty old. Maybe he *was* tired."

"Or perhaps he was having some sort of a slow stroke," added Carey, "that is, if there is such a thing."

"He certainly wasn't a young fellow," Trebor admitted. "And there is, in a sense, such a thing as a slowly developing stroke which, as I suppose you know, is a hemorrhage inside the brain. But there are a few features you both overlook. In the first place a man would have to be pretty old to tire that easily, and if he had a small, slowly developing brain hemorrhage it would not be likely to disappear and come back and disappear again every little while.

"Besides, with a stroke, no matter how slowly it develops, there are certain almost inevitably associated signs: headache, for example, and, depending on the particular area of the brain subjected to pressure from the increasing clot, localized paralysis. As a matter of fact, the diagnosis of cerebral hemorrhage is usually easy and does not present the picture I am describing.

"There was something a little different behind all this. For instance, the housekeeper remarked on something of great importance. Wilks has his meals with her; and Brown, who had been just a little worried about him, asked her once how he seemed when he was off duty and at liberty to be himself, as it were. She said that he didn't seem as active as he used to be; he soon tired when he took his evening stroll and wanted to sit down every little while. She said too, and this gave added strength to the vague suspicion that I had begun to feel, that he didn't enjoy his meals. I was so much interested in this that I had Brown bring her in to tell me about it. She told me that no matter what she cooked for him he 'just didn't enjoy it.' I finally found out that what she meant was that though Wilks seemed to enjoy the appearance of what she had prepared for him, he didn't really enjoy eating it. He chewed it as if it were tasteless; but nevertheless, though he ate slowly and without apparent zest, he ate. When I asked her whether he ever complained of anything in particular, she said only that sometimes he spoke of a backache and of his legs being tired."

"Humph!" grunted Carey. "Because you're telling it I know there was something the matter with this guy, but darned if I haven't felt like that many a time."

"Not just like that, and I hope you never will," smiled Trebor. "For he had something and no mistake—something that made him commit the unpardonable sin for a butler."

"Which was?" I asked.

"Nothing less than dropping things while serving. That was really what made Brown suggest that he have a vacation."

"I suppose you found out what it was," said Carey. "You had a flock of clues; for I suppose all these different sorts of tiredness *were* clues?"

"Yes, they were," replied Trebor, smiling, "clues to a very interesting situation."

"When does your fingerprint squad go into action?" I asked.

"Well, this was a case in which laboratory examinations did not play much of a part. You know, there are cases like that," he added. "This was the kind of case in which the most important things were the history and what could be found from the observation and, of course, the examination of the patient."

"Carey, you're gyped!" I exclaimed. "There ain't going to be no fingerprints."

"Rats!" rasped Carey. "You detective story tellers have harped on them until only a dumb egg leaves them any more. There's a lot to this business besides that sort of thing."

"Right you are, Inspector!" Trebor agreed. "Just as there is a lot more to the practice of medicine besides laboratory examinations. After all, the six most valuable things in the doctor's kit bag are the five senses God gave him, if he has developed them, and common sense which he *has* to develop. I hope my stories haven't given you fellows the impression that the laboratory is some sort of an oracle or divining rod. As I hope I told you when we began, and I think I did, the laboratory is just one phase of the examination of the patient. Properly used, it is a valuable adjunct; improperly used, it may be useless or even misleading. As I said once before, 'It's not the test—it's the interpretation.'

"You know, the ability to recollect something when you need it is about as valuable an asset as a man can have in any business. Carey knows that, and you ought to, Gavin," he added with a grin. "Where would you be if you couldn't remember some nice little bit of some other fellow's story now and then?"

"If there was only a lake handy," I grinned back at him, "both of you could jump into it, with my compliments."

"Seriously though," said Trebor, "a doctor has to carry a lot of odds and ends around in his head for use in an emergency. Being able to think of the possibilities smooths out many a diagnostic difficulty. For instance, there's a rather striking disease called dengue fever. When I tell you that it is also known as dandy fever and breakbone fever you may be able to guess the particular thing that makes it striking: The bone and joint pains make the patient walk with a sort of a dandified strut.

"You'd think a disease like that would be easy to recognize; and so it is when the patient begins to get around but not when he is in bed with pain and fever. There was a little epidemic of that in this country not long ago which wasn't recognized right away. It was taken for influ-

enza, as a matter of fact, simply because it was not a common disease in that locality and nobody thought of it as a diagnostic possibility until somebody came along who did think of it—and there you are.

"You know, what with all the modern developments in rapid transportation the geographic distribution of disease is rapidly becoming a thing of the past to a large extent. But that's another story."

"Speaking of stories," interrupted Carey, "what became of the one you started out with tonight? It seems to me we've left the butler alone so long he ought to be all rested by this time."

"Maybe you're going to get tired in his place," laughed Trebor. "There's nothing like sticking to a job until it's finished; so come along with Brown and me to visit Wilks. As Brown had predicted, I found him basking in the sun near the gardener's cottage and very glad, when Brown had left us to talk things over, to tell me all about himself, for he was naturally worried and somewhat anxious about his condition.

"He looked rather well and fairly well nourished, but he told me that for nearly a year he had been conscious that he became easily fatigued after even the smallest exertion. For some little time he did not pay much attention to this as it soon passed off when he rested, but of late this feeling of weakness had begun to worry him greatly because not only was it more marked but the spells, as he called them, seemed to be more frequent than before.

"When I endeavored to elicit from him a minute description of these attacks of weakness he always characterized them as 'just tiredness'; but he said one thing that greatly increased the suspicion I had already formed. It was this: 'Why, Doctor, sometimes I even feel too lazy to chew my food.'

"There were other significant features in his story. For instance, he had been worried about paralysis because, sometimes, when he was cleaning silver or handling dishes and so on, he found himself dropping things simply because his grasp of them was too weak to hold them. He didn't have any loss of sensation; he knew what he had in his hand, but he simply could not hold on to it. What puzzled him most was that at other times he felt as well as he ever did."

"*He* was puzzled!" I exclaimed. "Boy! That's nothing to where he has me now."

"I don't know where we are going to end up," added Carey. "But in the Department I'm afraid this case would join our file of 'unsolved.' You really haven't anything much to go on."

"We have that sort of case too," Trebor admitted. "You know we don't always succeed in making a diagnosis; sometimes even the autopsy doesn't explain clearly exactly what has happened, even though the patient is as dead as the proverbial doornail. And as to not having anything to go on—that's something for you to say, considering the little things that enable you fellows to slap some one in jail.

"What you really mean is that, though we have plenty of things here to go on, they don't mean anything to you. But they have to mean something to the doctor for, after all, all he ever has to go on are little things that he keeps on gathering, one after another, and fitting together until they add up to something. When you come right down to it, life is just a sequence of minutiae, and the same is true of disease."

"You're right, Doctor," Carey agreed. "The trouble is, I'm trying to play your game without holding the right cards; but it seems so much like my business that the temptation is natural. Come to think of it a fellow's a sap to think that all a doctor has to do is to look at him and make a diagnosis in a flash. That's one thing I've learned from these evenings, anyway. You said, a while ago, that you had formed some suspicions. Can we get in on them now?"

"Yes, indeed. Now as the facts of a case begin to unravel themselves you naturally begin to form some ideas about them. For example, Inspector, when you find a body with gunshot wounds you know at once that it has to be suicide, murder or accident, don't you? And as you begin to look the situation over, it doesn't take long before you have some glimmer of an idea as to which is the most probable.

"The doctor's in the same position. First he has to collect the facts, not only the ones that stare him out of countenance but also the clues he has to dig out and hunt for—just as your men have to comb the pawnshops and all that sort of thing, Carey. Then, of course, he has to form some sort of an idea of what it is that he is looking for, what sort of a diagram all these things form when they are fitted together. In some ways it isn't unlike these jig-saw puzzles, if you get what I mean. Naturally you have to start somewhere and, though you try to think of all the possibilities, you focus first of all on the probabilities. It is a good working rule not to look too hard for the rare things until you have proved that the usual and more common things are ruled out. 'The balance of probability' is a good rule to keep in mind in making a diagnosis. The doctor cannot call on the 'long arm of coincidence' as you writers do, Gavin."

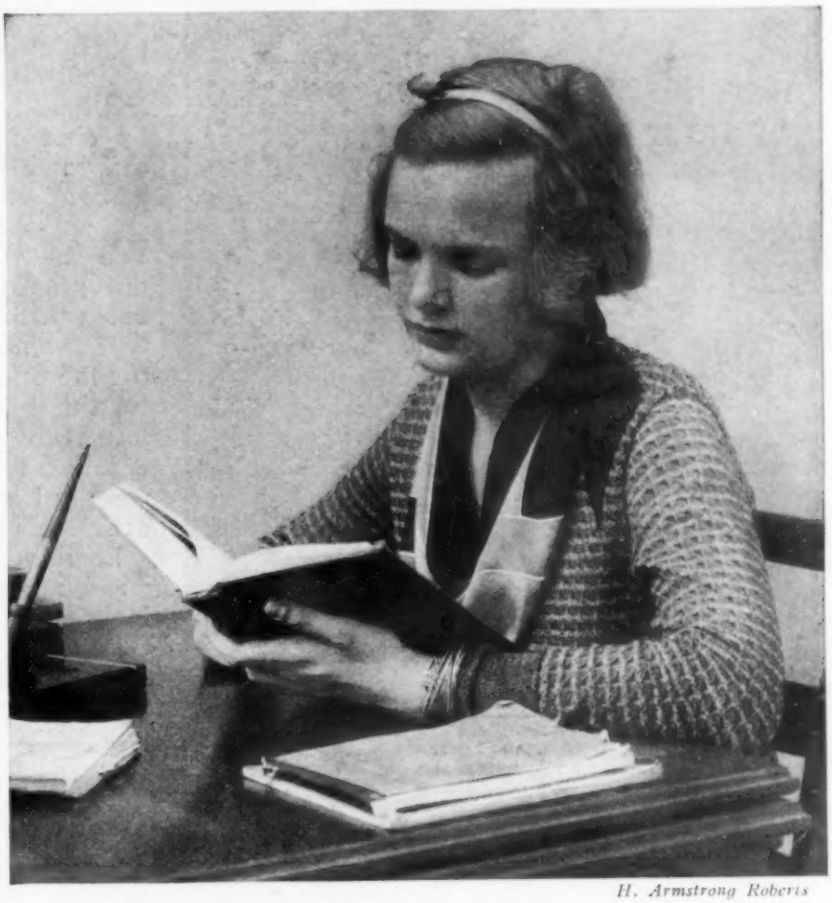
"Well, I'll grant that this case doesn't coincide with anything I ever heard about," I admitted. "I'm inclined to agree with Carey. You've got a few facts, but they don't seem to make sense or add up to anything."

"We haven't put them together yet," laughed Trebor. "We haven't got many facts, I'll admit, but what we have are rather significant. Let's see what we have. We have a patient who gets tired, which in itself is nothing remarkable. But, when we look into *(Continued on page 1008)*

The Mechanics of Reading

By

JAMES E. LEBENSOHN



H. Armstrong Roberts

UNDER FAVORABLE CONDITIONS THE EYES ARE NOT EASILY FATIGUED.

READING is but a phase of visual discrimination and as such, ocular, physical and psychic factors are simultaneously involved. Their spheres are more or less interrelated. As an instance, because of poor reading ability a third grade boy was suspected of being feebleminded. Though his vision was apparently normal the boy claimed that the letters looked as if some one had just put a wet blotter on them. When the proper glasses were worn, rapid improvement followed. Had the defective vision been neglected, a psychic reading disability would have developed for which glasses alone would no longer have been adequate.

Under favorable conditions the eyes are not easily fatigued; but under unfavorable conditions in which there are difficulties with fixation, accommodation, adaptation or interpretation, eyestrain is experienced. In the effort to improve perception the eye instrument continuously attempts slight changes in adjustment; the muscles become tense; congestion and irritability result, and fatigue follows. Over short periods of time, however, the eye adjusts itself surprisingly well to poor conditions; for example, when printed matter is vibrating, the reading rate is practically the same as when it is stationary.

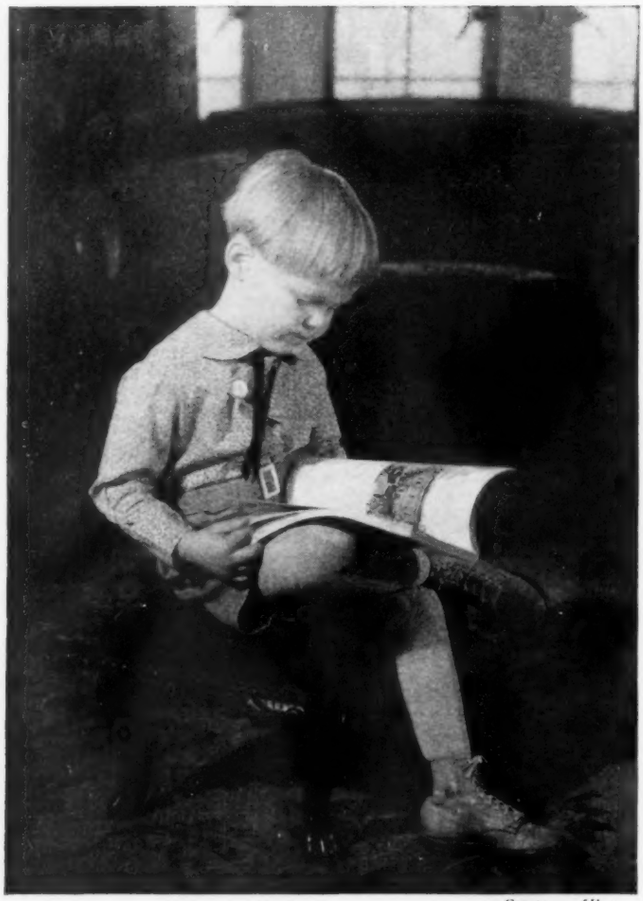
In a recent study by the U. S. Public Health Service nearly 2,000 unselected school children, ranging in age from 6 to 16 years, were carefully examined. One third of the group had subnormal vision, and one sixth of the remainder had sufficient "eyestrain" to require glasses. A survey of seventeen companies employing about 80,000 persons showed that less than 10 per cent wore glasses, while nearly half had defective vision. Among employees doing fine work an increase of efficiency, averaging 20 per cent, was noted following the correction of refractive errors.

Many functional defects of the eyes are secondary to poor reading habits. Not infrequently, also, pupils in difficulty with their studies claim a poor vision which is entirely hysterical.

Nevertheless the desirability of regular eye examinations for school children cannot be too strongly emphasized. If they are made just prior to the summer or Christmas vacations the necessary use of "drops" will not interfere with the class work. A clear perception of detail is most important in learning to read. Children report that they know "pig" by the dot over the *i;* "box" by the funny cross; "window" because the two ends are alike; and "monkey" by its tail at the end.

ASIDE from factors bearing directly on the visual process, mental receptivity is favored by a natural position when reading, a comfortable temperature, adequate ventilation and the absence of distracting influences.

For visibility there are four objective requirements: light, size, contrast and exposure period.



Century-Allen

CHILDREN BEGIN TO READ NEWSPAPERS AND MAGAZINES AS EARLY AS THE THIRD AND FOURTH GRADES.

Above threshold values, a deficiency in one component may be compensated by an increase in the value of one or more of the other factors. This accounts for the remarkable influence of ample illumination, which unfortunately is not sufficiently appreciated.

ILLUMINATION is measured by the foot-candle, which represents the intensity of the light of a standard candle at the distance of 1 foot. As the illumination becomes more intense, visual acuity rapidly increases, reaching a practical optimum at 30 foot-candles. Such an amount of light, however, is seldom utilized in reading. Much reading is done with but 2 foot-candles. To read diamond type easily at 20 inches requires 5 foot-candles, the minimum advisable. The Illuminating Engineers Society recommends from 10 to 20 foot-candles for reading ordinary type, and from 20 to 50 foot-candles for the prolonged reading of fine type. Daylight quality is desirable. The fear of artificial light is common but entirely unwarranted. Illumination in summer shade, though about 1,000 foot-candles, is easily tolerated. Pitkin, who holds that "life begins at forty," weakens one's confidence in his sapience when one finds in one of his books the thesis that "Most of us who work in large city offices are in constant danger of overbright lights." Precisely the reverse is true.

Light is seldom annoying on account of quantity but often because of glare due to its improper distribution in relation to the reader. Glare results when the eye perceives in the field of vision the source of light, either directly, as when one reads facing a window, or reflected, as from glossy paper. To avoid glare the principal source of light for right-handed individuals should preferably be behind and to the left; and local lighting should be supplemented by diffuse general illumination. Student eye shades are of value and should be more generally used.

FOR the average adult the rate of reading is not greatly affected by change in type size between 6 and 18 point, but the use of small type promotes rapid fatigue. The optimum size for the first and second grades is 24 point, and for the third and fourth grades, 18 point. College students read fastest and most accurately type of 10 point (1.5 mm.), and this is the standard size for advanced textbooks. This article is printed in 10 point type.

Legibility varies with the style of type. Handwritten and typewritten materials are less legible than materials printed in plain type. Because of the nature of the eye movements in reading, too long or too short lines are equally fatiguing. The best length of line for 10 point type is 3½ inches; and for this size of type the space between the lines should be from 1.5 to 2 mm.

Maximum contrast is desirable. Knitting white on white requires a greater visual acuity than knitting in contrasting colors. Books should be printed with a good quality of black ink on white or light yellow mat paper, thick enough to obscure the print on the opposite side of the page. Since soiled pages are hard to read, care should be taken to keep the sheets scrupulously clean.

The more favorable the visual conditions are, the faster is the speed of seeing. The visual reaction time decreases arithmetically as the intensity of illumination increases geometrically.

Eye movements are as essential to reading as hand movements to writing. A record of eye movements reflects accurately the psychic processes involved in an individual's reading. The motion of the eyes during reading is not continuous; it is a series of movements and pauses. After a brief pause near the end of a line, the eyes shift rapidly to the beginning of the next line of letters. Because this last pause in a line is of somewhat shorter duration than the average, proofreaders are more likely to overlook mistakes near the end of a line than elsewhere.

These eye movements may be observed by placing a mirror in front and to the right of the reader. By focusing a beam of light on the cornea a photographic record on motion pic-

ture film can be secured. Since the eye in reading sees effectively only when it stops, it is not surprising that 95 per cent of the reading time is spent in fixation pauses, which vary from one-fifth to one-half second.

Change in the size of type causes no appreciable change in the character of one's eye movements. The span of an eye movement is based, not on so many millimeters of space but on the number of units that can be perceived, recognized and remembered. The average person can grasp at a glance three letters, four numbers and as many words when arranged in meaningful order. Words can be read, even when the component letters are so small that they cannot be individually recognized.

Good reading is marked by quick, precise recognition of large thought units. Increasing the difficulty of a selection increases the number of fixation pauses and their duration and may introduce regressive movements. The eyes do not move faster than the mind.

Intelligent adults, reading newspapers silently at their ordinary speed, will vary in rate from three to ten words a second. Paradoxical though it seems, the fastest readers of a text generally comprehend it the best. Tests among college students show that the fast readers are able to reproduce 37 per cent more than the slow readers.

With training, both the span of perception and of recognition can be developed so that the individual will read in large eyefuls rather than in small ones. Oral reading is much less efficient than silent reading both in speed and in comprehension. Lip movements are undesirable and should be eliminated. Since children begin to read newspapers and magazines as early as the third and fourth grades, the home should provide for them two or three of the better juvenile publications.

Reading during convalescence should be limited. As the whole body is below normal, the eyes as well as the body become easily fatigued.

Though improvements in seeing conditions are of advantage to the normal individual, they give relatively greater assistance to the visually handicapped and at the same time are accompanied by lessened fatigue and an increased tolerance of refractive and muscular errors.

Though myopia is not necessarily associated with overuse of the eyes, nevertheless protracted and intense near work in the adolescent period appears to favor its progress. An investigation of apprentices in the printing industry disclosed that the work of compositors, which exacts the greatest demands on the eyesight, definitely encouraged the development and progress of myopia.

Children with low visual acuity require special educational attention. In the sight-saving classes designed for this group, the books are in 24 point type, and reading exercises are limited to periods of from ten to twenty minutes. One child in 500 belongs to this caste.

The glasses of an aged individual must be periodically checked to compensate for changes in the eyes. For old persons high intensities of light are an absolute necessity. It requires 27 foot-candles for a person at 63 to attain the same acuity that young eyes have with 2.5 foot-candles.

Poor reading is prevalent, affecting to a greater or less extent one eighth of the general population. Among school children the severe cases of reading disability number from 2 to 4 per cent, dependent on the methods of teaching. The tendency is often hereditary.

The commonest cause of school failure is poor reading ability. It is frequently misinterpreted as laziness, apathy or mental deficiency. Poor readers are customarily discovered in the third or fourth grades when their inadequacy interferes with progress in other subjects. If their shortcomings are not then properly diagnosed and remedied these children are doomed to educational failure and ultimate social maladjustment.

Children with defective intelligence cannot be expected to read with understanding. Other impediments are encountered with those whose meaning vocabulary has not been developed. Most interesting, however, are those children who suffer from confusion of ocular dominance. Though they may be right-handed, the right-handed point of view has never been thoroughly assimilated. These children tend to read backward and so confuse such letters and words as *p-q; b-d; u-n; w-m; was-saw; not-ton; dog-god.* Their intelligence in fields other than reading, such as mathematics or mechanics, is generally normal or better.

For training in these cases special exercises have been developed. Among the most valuable is the tracing of words as they are read aloud, thereby associating the imagery of the eye, ear and muscle sense. Present-day workers feel highly optimistic concerning remedial treatment.

This is 6 point type
This is 8 point type
This is 10 point type
This is 12 point type
This is 14 point type
This is 18 point type
This is 24 point
This is 30 point

THE LIVER IN HEALTH AND DISEASE

An Article in Which

OLIVER E. THOMPSON

Asks:

Can Man Live Without It?

THE GREAT MASSES OF HUMANITY ARE LIVING UNNATURAL LIVES. OVERWORK, TENSION, WORRY, WRONG HABITS OF EATING, SUCH AS THAT COMMON ONE OF EATING TOO HURRIEDLY—ALL THESE AND MANY OTHER CONDITIONS TEND TO INDUCE CONSTIPATION, WHICH IS A FACTOR IN PRODUCING DISEASES OF THE LIVER AND ALSO OF THE GALLBLADDER.

"DOCTOR, Johnnie is sick again—tongue coated, breath bad, no appetite, and he feels feverish. I gave him a round of calomel last night. You know, people are taking it so much nowadays for the liver."

Poor Johnnie! He is often the one who suffers most from the freely given advice of well meaning but misinformed relatives and neighbors. Calomel has been practically discarded by the medical profession and has been replaced by less injurious drugs.

This vital organ, the liver, one of the organs supposedly at fault in Johnnie's case, is situated on the right side up under the dome of the diaphragm, the large muscle that separates the chest from the abdomen. This gland is the largest in the body, weighing from 3 to 4 pounds. The liver is made up of rounded masses, or lobules, which measure $\frac{1}{25}$ inch in diameter. The lobules are composed of columns of cells radiating from a common center. Along the blood vessels there is another type of cell, the size and shape of which depends on the amount of work to be done. These special cells have the power to pick up or absorb solid particles, foreign bodies, or even red blood cells from the blood stream. The liver cells lie in direct contact with the small vessels, and on the other side of these rows of liver cells are the bile channels which carry the secretion, the bile, into the larger collecting channels and on to the bile ducts and gallbladder where the bile is stored for future needs of the body.

THE liver is fairly well protected from injury by the diaphragm, which separates it from the chest cavity, and by the ribs and muscles which directly cover it. Injury to the liver may result from falls, blows, broken ribs and gunshot. Cases of injury to this organ from stab wounds

have been reported, but they are not of frequent occurrence. Should grave injury result, death might ensue, for the organ contains roughly one fourth of the blood supply for the entire body. This amounts to about a pint. Moreover, since the delicate veins of the liver are not supplied with valves, bleeding is quite profuse. Most of the larger veins of the body have valves which to some extent prevent serious hemorrhage if their walls become injured.

THE liver has a rich blood supply; in fact, a dual blood supply. The first comes from the general systemic circulation by way of the liver artery, which is called the hepatic artery from the Greek word *hépar*, meaning liver. This artery with its tributaries supplies the tissue spaces between the liver lobules. The second supply is brought by the portal vein, which carries venous blood from the stomach and intestines and spleen through the liver and out by way of the hepatic veins. The hepatic artery and the hepatic veins form a nutritive circulation, and the portal vein together with the vessels with which it connects forms a functional circulation.

One expects efficiency from a chemical unit, and the liver is nothing less than a chemical unit functioning in harmony with the body as a whole. A healthy bile system, which includes the liver, the gallbladder and their ducts, can remove from the body with the help of the kidneys what is often considered a powerful dose of many of the poisons.

The bile contains an important digestive principle acting on fats. Bile is also an antiseptic and a stimulant of peristaltic activity, which aids digestion by means of normal wave-like movements beginning in the upper part of the digestive tract and passing downward.

In addition to the external secretion of bile the liver has numerous other uses, among them the internal secretion of various substances. By internal secretion is meant the secretion of a substance directly into the blood stream. Such secretions are furnished by the liver, thyroid, spleen and other glands of the body.

The liver is the chief heat conserving organ of the body. It furnishes an internal secretion which has to do with the production and storage of the sugars, classified collectively as carbohydrates. The liver has the power to elaborate sugar from protein. According to Wright, if the liver sugar, or glycogen, has been used up as a result of starvation, the blood sugar remains at its normal level until the end.

The liver manufactures red blood cells in the unborn, and some authorities believe that it acts as a storehouse for red blood cells as well as for the material for the production of hemoglobin, the coloring matter of the red blood cells. When the amount of hemoglobin is reduced or when there is a reduction in the number of red cells in the blood, anemia is present. There is an unknown substance in the liver that has a protective action against this condition. This unknown substance is necessary also to prevent hemophilia, a condition in which the patient bleeds easily because of delayed clotting of the blood and consequent difficulty in checking hemorrhage.

The liver forms those substances which are abstracted by the cells of the kidney and appear in the urine in the form of waste and acid and other allied substances.

The gallbladder, which acts as a reservoir for bile, is situated under cover of the lower border of the liver. In size it is not significant; it is no larger than a small pear, the average size being 1½ by 3 inches. It is capable of holding from 1 to 2 ounces of bile. This bile is more concentrated than liver bile which has just been excreted; it is at least from five to ten times stronger. The mucous membrane, which is the inner lining of the gallbladder, absorbs the watery part of the bile.

The secretion of bile is a continuous process. About three hours after the meal there is an increase in the amount of bile formed. Whole bile or its active principle, the bile salts, is the most powerful stimulant to the flow of bile. Wright says that from 8 to 12 Gm. of bile acid taken by mouth causes an increase of bile lasting from twenty-four to forty-eight hours.

In man the total amount of bile formed in twenty-four hours amounts to about a pint and often a quart. It is excreted at a low pressure, so the flow can be easily obstructed. If obstruction occurs, causing an absence of bile in the intestine, the skin becomes yellow and soon the person is quite sick.

AUTHORITIES agree that inflammation of the gallbladder, liver and the bile ducts leads to the formation of gallstones. Organisms may enter the blood stream from some hidden infection in the teeth, tonsils, appendix or some other part of the body and so reach the gallbladder, or they may be directly excreted by the mucous membrane of the gallbladder. Inflammatory fluid is formed, and the bile is altered in consistency and character, leading to the formation of mixed stones containing crystallized salts, pigment and even bacteria.

Inflammation then without doubt is one of the most outstanding causes of gallbladder disease. It has been demonstrated that an inflamed gallbladder has a slower emptying time.

The gallbladder, unlike the liver in this respect, is not essential to life; but if it is healthy its presence is desirable. It has a function to perform in the digestive and protective mechanism of the body. If removal becomes necessary the bile ducts become dilated to accommodate the continuous secretion of bile. Besides serving as a reservoir for bile the

mucous membrane of the gallbladder excretes certain substances that reach it by way of the blood stream; in fact, bacteria are removed from the blood and carried away in the bile.

Among the many diseases that attack the body some of the most common cause considerable damage to the liver. Syphilis, tuberculosis, cancer, amebic abscess of the liver and numerous others have serious effects on it.

Poisons, especially mercury, lead, arsenic, phosphorus and muscarine, which is found in various mushrooms, cause atrophy of the liver. Every spring the newspapers report a list of deaths due to eating poisonous mushrooms.

Circulatory disturbances bring to our attention chronic congestion, or jaundice, both in the obstructive and the catarrhal form. Every disturbance of the circulation has its effect on the liver.

Cirrhosis, or hardness, of the liver is so important a subject that it should have special mention. Many classifications have been given by various authors, but none is so complete as Mallory's. In Boyd's "Pathology of Internal Diseases" Mallory lists five varieties of cirrhoses: alcoholic, toxic (poisonous), biliary or infective, pigmentary (due to blood pigment or metallic salts such as mercury, lead or iron) and syphilitic.

Alcoholic cirrhosis is often spoken of as gin drinker's cirrhosis, but authorities are not agreed as to the extent alcohol plays in the production of this form. It may be that bacteria are the direct cause and that alcohol is the secondary cause in lowering the resistance of the tissues. In "Materia Medica and Pharmacology," Bastedo says:

> Gordon studied the pedigrees of four generations in three alcoholic human families, and found various degrees of mental deficiency, striking feeble-mindedness, epilepsy, violent temper, habitual walking in the sleep, tremors, and involuntary and irregular jerking movements. In four generations there were only three normal descendants of the alcoholic males. Stockard quotes Sullivan's observation of a sober industrious woman who married three times. The first and third husbands were sober, and with the first there were three normal children, and with the third two normal children. The second husband was a drunkard, and of this union there were three children, one of which became a drunkard, one an epileptic, and one a degenerate.
>
> There is evidence that medicinal quantities of alcohol increase the susceptibility to bacterial invasion or increase the danger of accumulation of poisonous substances in acute illnesses; and there is no doubt that the taking of alcohol in large quantities day after day for many years results in impairment of the body structures, lessens resistance to many infections, influences unfavorably the process of building up within the body protection against disease, and diminishes the healing power of injured tissues. There is a well recognized high mortality among alcoholics in pneumonia and tuberculosis.

Abscess of the liver is another condition that should be mentioned at this time. Septic or infected particles, traveling from the gastro-intestinal canal to the liver by way of the portal veins may give rise to the formation of abscesses. The usual infected material comes from a diseased appendix, but it may be the result of a tropical infection by ameba. Travel in the tropics is not the only source of amebic infection. The occurrence of this disease is increasing in this country as a result of the careless handling of food and the eating of raw foods not properly washed.

Chronic constipation, a condition due to faulty elimination, is one of the commonest ailments of the present age. The great masses of humanity are living unnatural lives. Overwork, tension, worry, wrong habits of eating such as that common one of eating too hurriedly, neglect, disease conditions of the rectum and colon, hemorrhoids, fissures, colitis and allied conditions, the habitual use of liver pills, the lack of fluids between meals, all these bring on constipation. The liver is not to blame for this condition. While it is true that the bile salts have a laxative action, nevertheless the fault is in the habits and conditions heretofore mentioned. Constipation is a factor in producing diseases of the liver and gallbladder by causing back pressure on these organs; and the liver and gallbladder conditions are somewhat to blame for constipation, especially if the flow of bile is diminished or is of poor quality. In "Physiological Chemistry," Hawk says: "A functionally defective liver produces less than one-half the normal amount of bile acid."

After reviewing the important functions of the liver it is hardly necessary to say that this organ is most essential to life. Indeed, without the liver, man could survive but a short time. Partial extirpation of the liver in the dog has shown that this animal can live free from symptoms with but 30 per cent of his liver tissue. This remaining part, less than one-third, rapidly reproduces, so that soon the gland is restored to its preoperative state. Experiments of this kind illustrate the enormous physiologic reserve of the liver and show how severe and extensive a liver disease can be before symptoms are noticed.

Though the body is capable of taking care of many of the abuses to which it is subjected and though one sees, daily, living examples of over-indulgence, nevertheless every endeavor should be made to correct these mistakes, thereby preventing the end-result, disease.

The "Nervous Wreck"

By LEE D. CADY

WHEN HE IS EVEN SLIGHTLY ILL HE IS WORSE THAN A BABY.

SOME time ago, after "The 'Demon' Housekeeper" was published in HYGEIA, I was the recipient of comments from several points of view. Few of the demon housekeepers resented the article. Husbands of demon housekeepers felt they were themselves better understood; some even intimated that it was only women, never big, strong, level-headed men, who could fall into such a trap of nervous symptoms.

Well, there is as much sauce for the gander as there is for the goose. What about that cantankerous creature, the Neurasthenic Salesman? Just this: It is very unfortunate when a neurasthenic salesman happens to be the husband of a demon housekeeper. In some respects they are too much alike. Who will give, and who will take in the give-and-take part of domesticity? One thing they are certain to take—much mental misery. And the curious part of it all is that the neurasthenic salesman is just as much entitled to sympathy as is the demon housekeeper. Both are emotionally if not actually physically ill.

If you talk to one of these men, he will probably declare that he has never been sick a day in his life, and if this blasted trouble of his would only let up, he would get big things done in practically no time at all. Only . . .

"But are you nervous in any way?"

"Nervous! Humph, me nervous! Ridiculous!"

Few of them will admit the possibility of other troubles as part of their nervousness. No, that would be—well, rather effeminate, and besides men are not supposed to be as nervous as women. Maybe they're not, as a sex, but as individuals—yes, emphatically, yes.

Are these determined men just stupid, or are they merely afraid? Their wives usually say that just as soon as they become the least bit sick they are worse than babies. That cures them for a while, for what man does not wish the respect of his own wife? He wants his own self respect too; so on he goes, resentful because nobody has any sympathy for a poor fellow flat on his back, and *suffering*. It is like a vicious cycle for him to throw himself angrily back into the world of affairs only to receive another buffet and a bruise to his tender ego. He tells himself he does not need any sympathy and does not want it anyway. Nevertheless, he is resentful, and usually that is what was wrong in the beginning. He is not stupid, at least not about anything but himself, and he does not seem frightened. Cross him outside the home, and decide that for yourself; but be careful, for he is at odds with the world.

You would not care to obstruct the burly Mr. Lion who was an insurance salesman and emanated determination and vitality. He was better than the average man at his work, and he hoped to have an agency of his own and somebody else to do all the running about for him. He had ambitions. Also, he had stomach trouble, but a little soda always relieved it. He happened to hear a medical talk on nervous dyspepsia. Knowing how insurance companies feel about stomach ulcers he decided that such a diagnosis as that would be all right. A little medicine would fix it, and he would not have to accept anything worse. So he went to a doctor while he was in the notion.

The story of Mr. Lion fits together like this: He was doing all right during the ebullient days of 1928, but he wished to do better. He joined the mass of speculators and was soon having more paper winnings in the stock market than he was earning at his work. He began to feel a sort of arrogance. By September 1929 his overconscientious wife and he were near the parting of the ways. That was when the stock market wavered. It was also when his stomach first began to burn after meals and he began loading it with bicarbonate of soda for relief. The divorce might have relieved his emotional

BECAUSE OF HIS SUCCESS IN THE STOCK MARKET HE BEGAN TO FEEL A SORT OF ARROGANCE. BY SEPTEMBER 1929 HIS OVERCONSCIENTIOUS WIFE AND HE WERE NEAR THE PARTING OF THE WAYS.

condition, but it happened to come about the time the market made its real crash. The stomach burned merrily all this time except whenever he was completely diverted in a pleasant way. In March or April of 1930 he was in a fair way to recover his losses, and his stomach ceased its trickery. He forgot all about it until the market slumped off thuddingly about June or July. Like a bad penny the stomach trouble came back, maybe worse than before because Lion was so bewildered and insecure in his mind. As soon as he decided he really should attend strictly to his own insurance business his stomach became practically normal again.

His fancy again turned to love, and he was beginning to regain a feeling of security. Then in the fall of 1932 his bank failed. It became harder and harder to sell insurance, for no longer were his clients thinking of such matters. While reading of bank failures he tried to congratulate himself that he had no money to lose. In February his "ulcer" or "cancer" symptoms began. Yes, he did have some suspicion of such things, but he did not associate them in any way with the long bank holidays. He did not associate the symptoms with a complete inability to sell insurance either. He was afraid, and he remained that way even after he could sell insurance to people again.

Surprisingly enough, he got over all his symptoms in less than two weeks after they were explained to him and he was given some mild sedatives to help his emotionally surcharged nervous system to let his stomach alone.

A longer story could be told about an aggressive fellow who played football. One day he got a bump on the head. He was unconscious and dazed for a few minutes, but it was nothing. In the course of six or seven years, Mr. Football's ambitions made him emulate some older men in the insurance game. He bucked the line and made some gains, but early in December 1929 his interference was not so good, and the world tackled him so hard the game was over.

No, he thought, it was not really the world; it was his headaches and inability to concentrate. For about eighteen months he would wake up in the morning and feel unable to set his big hulk going. He tried medicines. He even tried to go back to selling insurance, hoping to forget his affliction. Undoubtedly that old football injury had jiggled something loose, for on some days he could feel a tightness around his head, a pressure on top of his skull, and it seemed as though his brain would separate into an upper and a lower part—and move! He took to solitary drinking sprees because he had no interest in anything. Doctors and cultists did him no good, and he was not interested in a religion which allowed such miseries to happen. The Lord had forgotten him, he told himself, but he was afraid the devil had not; so he procrastinated about committing suicide. His family prevailed on him to make just one more effort medically.

He went to a clinic, and the doctors passed his indifferent body around among themselves until one laid his record aside and began to ask questions about his work, his ambitions and his failure in life. Football thought this examination was going to be a worse failure than all the others, but he told the doctor that after the big market crash he had hated to interview prospective clients because they had already lost so much money.

"Indeed!" said the doctor. "So you see both sides of this salesmanship business, do you? . . . Do you think you were really cut out for a salesman? . . . Well, think it over. Wouldn't it be better for you to employ yourself in such a way that somebody else must sell for *you?*"

Ten days later, Football reported himself free from headaches, and he had already engaged himself in a construction business, making things but not selling them. Oh, well, who ever heard of a *good* salesman who really sees both sides of the sale alike?

There are many people who make a virtue of being foresighted. Mr. Bridgecrosser was one,

and he sold many different securities for a large concern. He foresaw middle age and affluence coming at the same time because his private speculations were quite successful. But he was nervous and keyed up to such a pitch that sedatives, which he prescribed for himself, were necessary every two or three hours. After the first dip in the 1929 market he went to a diet faddist for the sake of his stomach. He was never quite clear which came first, his own or the market's collapse later in the year. At any rate both were wallowing in bewildered distress for a matter of ten days before Bridgecrosser revived enough to save a few thousand dollars from the debacle.

THE security business was not so good after that, and for the next two years he was on the defensive, financially and physically. He was being treated for pernicious anemia, probably because his fortune was so anemic, and four tests failed to reveal any digestive acid in his stomach. It was a bad diagnosis, and he could recite just what every test of every kind had been. The difficulty in his case of statistics was not hidden resources but unrecognized deficits.

He began his wild-eyed recital of woes and wanted to tell the new physician just what to do for him. But the physician interrupted him to ask whether he had not tried about every fad and doctor he had known. He had. If the executives and board of directors of a sick corporation wished to avoid bankruptcy and liquidation, what might they do? Why, go into ancillary receivership, of course. That meant a friendly dictatorship, did it not? Yes, but what had that to do with his illness? Well, medically, he was trying to be one of the doctors on the case; and unless he was willing to discharge himself, that particular physician would not take it. He must go home and write out a complete story of his emotional life from early childhood until that time.

Unconvinced, but agreeing that the plan might be logical, Bridgecrosser decided he might as well try it because it was different. He wanted another one of those hated stomach tests, but the doctor had ideas of his own and procrastinated until many things had been explained. The test was normal when made. What a relief!

After that the doctor set about making the patient burn every bridge he had crossed. Tangled financial affairs were straightened out. Impending bridges to cross were crossed and then burned, but still he feared and was not completely comfortable. Depression and resentment so filled him at times that he could not see any future, and he made life miserable for his patient wife. He was packed off to Arizona, alone and friendless, to reorient himself, secretly believing he might as well die there as at home. But within a month he learned that the essentials for happiness are few. There was nobody there who was willing to listen to his troubles or to advise him; he arrived at that fundamental conclusion himself. A tenderfoot, he recovered his ambition and vigor so much that he took a temporary job overseeing the cowboys and the ranch where he was staying. Soon he returned to the distressed realm of finances and has been doing very well. He has learned much about himself that keeps him out of inward trouble.

When people have in them a spoonful of fear, a pint of anger and about a quart each of self respect and altruism, they are fairly well balanced and comfortable. The small amount of fear is the seasoning of caution. The anger emotions are the ones that cause people to be ambitious, determined and aggressive. Anger and altruism are always boosters of self respect at the time, but fear tears it down. Altruism is something in the nature of conscientiousness. These neurasthenic salesmen started out with a little too much ambition and they could not live up to their ideals of self respect, just as demon housekeepers cannot live up to their conscientious ideals. Both mean well, but they will not help themselves until they are defeated and bewildered. Then they may sometimes listen to somebody else and extricate themselves from illness.

It is well known to doctors that anger and fear do things to one's insides. It is not so well understood that worry is virtually chronic fear, and resentment is chronic anger. Add together the effects of many little resentments or worries, and the result is rather poisonous.

THEY PASSED HIS INDIFFERENT BODY AROUND AMONG THEM.

WHAT YOU SHOULD KNOW

THERE ARE fashions in diseases as in clothes, and the neurotic patient would not think of having a headache from anything but sinus trouble. It is chiefly this type of patient who is responsible for the belief that there is no cure for sinus trouble and that operation merely makes it worse. Naturally it is impossible to cure a disease when it exists only in the imagination. However, these people are decidedly in the minority as compared with those who actually suffer from sinus disease.

The fact is that acute infection in the sinuses may cause pain for a while, but chronic disease of the sinuses, which is the worst type, is usually accompanied by little or no pain. Headache and nasal discharge may be so slight as to be hardly noticeable, but the infection in the sinuses can and does affect the general health in the form of heart trouble, rheumatism and other diseases.

The question is often asked, "What happened before so much was known about the sinuses?" The pains in the head were called neuralgia and were treated with medicine to kill the ache. The profuse discharge was called catarrh and was allowed to go at that. In other words the symptoms were treated, and the cause was not discovered at all.

The complications, such as certain forms of heart disease, rheumatism, blindness and general ill health, were treated in the best way known at that time, without much success. No one realized that these troubles came from some primary source of infection, such as the teeth, tonsils or sinuses, and that until treatment at the source was instituted, cure was impossible. I can well remember that certain sinuses, which were found to be the seat of all trouble at postmortem examinations, were considered beyond the approach of the surgeon. Now all the sinuses can be reached and properly treated.

The opinion now prevails in some minds that once a person has sinus trouble, he always will have it, and that if he has one operation on the sinuses, he will have many more and never be cured. This belief comes from having ill advised operations on the wrong type of case or incomplete operations on a suitable case. If patients would select their doctors for their ability as well as their affability, they might fare better.

Every head cold affects the sinuses, causing headache and a sensation of fulness about the eyes; and repeated head colds lead to chronic sinus disease.

One hears that certain climates are better than others for persons with sinus trouble. This is true to a certain extent. People living in a warm, even climate are less liable to colds and therefore less liable to sinus infection. Certain types of sinus disease are not limited to any one territory and are just as severe in Florida or Arizona as they are in any other state. Only a few persons are so situated that they can leave family or business and spend the winter months in the climate most favorable to their health. The majority of us must meet the enemy in the home town and conquer it.

CERTAIN TYPES OF SINUS

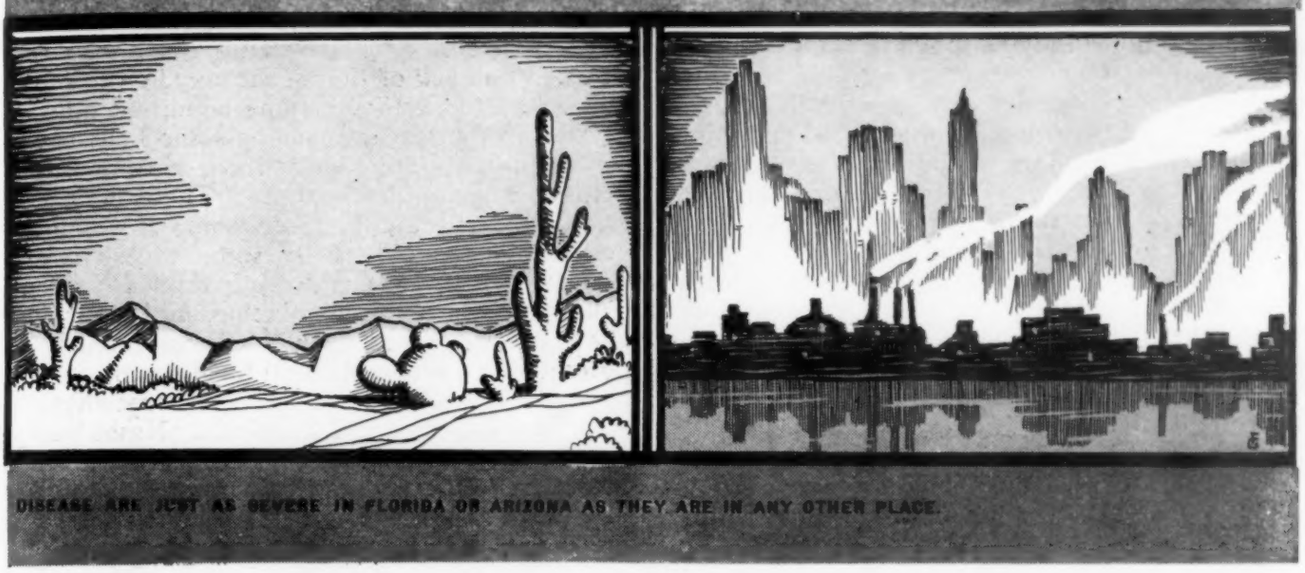
THE nasal sinuses are cavities in the bones of the skull. All are extensions from the nose. All have openings into the nose. All are lined with the same kind of mucous membrane as is the nose; this membrane is thin, moist, and sterile when normal; that is, there are no germs in it.

There are four sets of nasal sinuses. The antrums, or maxillary sinuses, are situated on each side of the nose in the cheek and extend from the roof of the mouth to the floor of the eye cavity. These are the largest sinuses and have their openings into the nose near their top. The frontal sinuses are above the eye and behind the eyebrow; these are the next largest in size, and they open into the nose at their lower border. The ethmoid sinuses, usually called cells, vary in number, the average being about twelve. They are situated in the top half of the nose between the eyes. In appearance they could be compared to honeycomb, except that the cells vary in size from that of a bean to that of a small pea. The sphenoid sinuses are situated deep in the head, directly behind the ethmoids.

The function of the sinuses has not been clearly determined as yet. It may be that they

ABOUT SINUS DISEASE

By LEE M. HURD



DISEASE ARE JUST AS SEVERE IN FLORIDA OR ARIZONA AS THEY ARE IN ANY OTHER PLACE.

augment the nasal moisture, as normally the nose is required to produce nearly one quart of moisture in twenty-four hours. Infection in the sinuses causes serious local and general trouble. Surgical treatment of the sinuses does not seem to interfere with the nasal function.

When a person has a head cold the same infection invades some or all of the sinuses, and repeated colds lead to chronic sinusitis. One of the frequent complications of influenza is infection in the sinuses. It is also contracted in swimming pools.

ALLERGY is the cause of sinus trouble in about half the cases. Allergy is the sensitivity of the nasal mucous membrane to certain foreign particles in the inhaled air or to certain foods. For example, the offending material in the air which is inhaled may be house dust, orris root, feathers or some other unsuspected substance. Or a person may be sensitive to any food and sometimes to certain drugs, such as aspirin, quinine and many others. The symptoms are similar to hay fever except that they continue the year around. Sneezing, nasal obstruction and headaches are present, and the patients think they have a continuous cold. Suffice it to say, this condition causes the membrane lining the sinuses to swell and become water logged, rendering them an easy prey for invasion of infecting germs inhaled in the air, thus setting up a chronic infection.

Bony abnormalities in the nose, such as a deviated nasal septum, will often interfere with normal nasal function and produce sinus disease.

Preventive measures include the gaining of proper nasal function by surgical removal of local abnormalities and the avoidance of head colds by proper hygiene.

The conditions that make a person susceptible to a cold in the head are impaired general health, local diseases in or connected with the nose, adverse weather conditions and the activity of the germs in the nose. If a person is in perfect general health the likelihood of the germs getting the upper hand and causing a cold is extremely remote. The trouble is that few persons are in perfect health. In many, resistance is low and the germs can become active. Since the germs are constantly present, avoiding a cold simmers down to keeping always in good condition.

For the average person the rules are few and simple: Eat a well balanced diet of meat, vegetables and fruits. For the amount of physical work they do most persons are inclined to eat too much meat and not enough green vegetables and fruits. Drink plenty of milk and water. Be moderate in the use of tobacco and alcohol.

A MODERATE amount of daily exercise in the open air is most important. Walking to and from work, if you are confined indoors, and taking setting up exercises before breakfast with the windows open will help. Best of all are athletic games, for they afford mental pleasure as well as physical exercise. Have at least eight hours of sleep at night, with the windows open. Rooms in which you live or work should be well ventilated but without draughts. Tonic baths lessen the susceptibility to colds. A cold bath in the morning is the best of tonics, if you react properly; that is, if the skin glows and you feel more active afterward. If you react poorly, that is, if the body and especially

the hands and feet remain cold, cold baths should be omitted. The cold air bath may be taken instead. This consists of standing in a room with the windows open until the effects of the cold air on the skin are distinctly felt. A brisk rubdown should then be taken with a coarse towel until the body is warm and glowing.

Should you be so unfortunate as to catch cold, do not neglect it, but begin treatment at once. Following an attack of influenza, double precautions should be taken so that the acute infection in the sinuses does not become chronic. Nearly all acute sinus infections will clear up if they are given intelligent care.

An acute infection is like a severe head cold. The headache depends on the blockage of the sinus outlets into the nose. The skin feels hot, and the patient may perspire easily. The nose is stopped up. There may be pain over the affected sinus, for example over the eye if the frontal sinus is affected, or in the cheek, temple or teeth if it is the maxillary sinus, commonly called the antrum. The sufferer may be incapable of clear thinking, and reading increases the headache. There will be no chill or high fever unless the opening of the sinus into the nose is completely blocked. Sometimes there is dizziness. Complications may appear, such as the formation of an abscess behind the eyeball or meningitis.

TREATMENT for acute sinus infection consists of rest in bed plus such other measures as the doctor may order.

Surgical treatment is rarely needed. If there is much pain and pus in the maxillary sinus the sinus should be washed out by a doctor. If there is swelling of the eyelids or very high temperature the surgeon should operate to relieve the condition, as these symptoms show that complications are developing.

Chronic infection in the sinuses follows repeated acute attacks, allergy, and abnormal anatomic conditions inside the nose. Persons with chronic sinusitis may suffer much from disability and become chronic invalids while the family may consider them neurasthenic. When latent infection is present in the sinuses and there are few if any local symptoms, the feeling of illness is often attributed to the weather or climate.

There may be some dropping of mucus from the back of the nose into the throat as the only symptom, or the discharge may be profuse, requiring the use of several handkerchiefs a day. There may be sneezing in the allergic cases. The back of the throat may be thickened and congested, and the same condition may be present in the larynx, causing some hoarseness. These patients frequently have chronic bronchitis and sometimes asthma. There may be a number of eye complications, some of which are very serious, and usually some digestive disturbance due to the swallowing of pus is present. There may be dull headaches and neuralgia about the face and eyes. A large number of patients have few and slight local symptoms but have severe secondary conditions somewhere in the body remote from the sinus. Nasal polypi are nearly always a secondary condition to sinus infection. Rare complications are meningitis and brain abscess. Damage to the ears, such as abscesses, and catarrhal deafness are sometimes due to the infection in the sinuses. Rupture of the ethmoids behind the eye may cause an abscess of the orbit. The nerve of the eye sometimes is situated so close to the ethmoid or sphenoid sinus that the inflammation may extend to the nerve and cause blindness. Sight can be restored if the sinuses are operated on promptly.

Some of the mild chronic cases can be cured by local medical treatment. The others will require surgical treatment by a competent specialist.

Do not despair if you have sinus trouble. If you have headaches that cannot otherwise be accounted for, or if you have mucus dropping from your nose into your throat and are suffering from bronchitis or asthma, have a thorough examination and find out whether your sinuses are free from infection. If you have rheumatism, stop taking pain killers and find the source of the trouble. If you are easily fatigued and never feel up to the mark, see whether the discharge from your nose does not indicate the primary trouble. Do not be misled by what you hear. Sinus disease can be cured.

TRADITIONS and TURKEYS

By
Melba
Acheson

BE SURE OF FOWL AND STUFFING AND CRANBERRIES—THEN DO WHAT YOU WILL WITH THE REST OF THE MEAL. WHAT IS DONE WITH THE FOWL AND STUFFING, NOT TO MENTION THE CRANBERRIES IS OF THE UTMOST IMPORTANCE, HOWEVER!

Century Photos

ONCE upon a time a man, invited out to Thanksgiving dinner, was served a perfectly planned, delicious meal—centered around roast beef. He never got over it! It was too much of a blow that his friends should be so crass as not to have a roast fowl on Thanksgiving.

If the truth were known, quite a number of us feel the same way as did this poorly treated gentleman. I, for one, admit that I do. Even if the main course of my Thanksgiving dinner had to be only a very small and very old chicken, fowl it would be. Be sure of fowl, stuffing and cranberries—then do what you will with the rest of the meal. What is done with the fowl and stuffing, not to mention the cranberries, is of utmost importance, however!

There are almost as many varieties of stuffings as there are families, and the variety used is almost a tradition. Yet even for the most tradition-tied of us, an occasional change is welcome. So many new dressings, delicious sounding ones, keep getting themselves talked about. Maybe it will be worth while to look into some of them, of which peanut, chestnut, onion, apple-prune, celery-almond, oyster and sausage are but a few. For turkey and chicken, plain bread stuffing and its variations can compete with any variety now known. Some families use onion for flavoring; some use thyme or both onion and thyme; some hold that stuffing is a sad business without sage, and vice versa. At any rate, stale bread and not too much liquid should be used, since too moist a dressing is likely to be soggy after cooking.

Stuffing is a delight to a cook who has a bit of the artist in her. She needs no recipe, no stated amounts; rather she determines the type she wants, and then with a skilled and artful hand she adds a bit of this, a bit of that, mixing and tasting thoughtfully all the while. Many cooks can use this rule of thumb for all stuffings; others can apply it to familiar ones. But for those of us who have been brought up strictly in the 1¾ cupfuls-of-this and 2 teaspoonfuls-of-that school, turning us loose without any specifications at all is likely to put wild looks in our eyes. For that reason, actual recipes for certain stuffings are included here. Add to, subtract from and multiply them to suit yourself.

Celery-almond stuffing is a variation of the old bread recipe which is popular in many families. All planned out in amounts, here is the recipe.

Century-Allen

THERE ARE ALMOST AS MANY VARIETIES OF STUFFINGS AS THERE ARE FAMILIES, AND THE VARIETY USED HAS BECOME ALMOST A TRADITION. YET EVEN FOR THE MOST TRADITION-TIED OF US, AN OCCASIONAL CHANGE IS WELCOME. STUFFING IS A DELIGHT TO A COOK WHO HAS A BIT OF THE ARTIST IN HER. SHE NEEDS NO RECIPE, NO STATED AMOUNTS; WITH SKILLED AND ARTFUL HAND SHE ADDS A BIT OF THIS, A BIT OF THAT, MIXING AND TASTING THOUGHTFULLY ALL THE WHILE.

Celery-Almond Stuffing

6 cupfuls bread crumbs, toasted
½ cupful celery leaves, shredded
3 cupfuls diced celery
1½ cupfuls whole blanched almonds
1½ teaspoonfuls salt
½ teaspoonful pepper
½ teaspoonful poultry seasoning
2 eggs slightly beaten
½ to ¾ cupful water or milk
¼ cupful turkey fat or butter

Combine all ingredients thoroughly and fill into turkey.

Chestnut stuffing for turkeys is a truly old tradition in many families, and it's a good one to have, too.

Chestnut Stuffing

7 cupfuls bread crumbs
2 cupfuls chestnuts
1½ teaspoonfuls salt
½ teaspoonful pepper
2 eggs slightly beaten
¾ cupful milk
½ cupful butter or turkey fat

Shell the chestnuts, and cook them in boiling water until the brown skin can be removed easily. Remove the skins, shred or dice the white portion, and brown in 2 tablespoonfuls of the fat. Combine all the ingredients, and fill into the bird.

A light, not too rich dressing seems the ideal accompaniment to a crusty brown bird. Rich, oily or heavy stuffings, while popular in many families, seem a bit too much to add to a holiday meal. A vegetable or fruit stuffing is a welcome contrast to the rest of the meal both in flavor and in texture. Here is a recipe for vegetable stuffing that, given a chance, will probably become popular in your family.

Vegetable Stuffing

2 cupfuls raw spinach
4 sprigs parsley
1 large carrot
1 small green pepper
1 small onion
3 large stalks celery
2 tablespoonfuls butter
1 egg, slightly beaten
26 soda crackers, rolled
½ teaspoonful salt
½ cupful milk

Pack the spinach tightly into the cup when measuring. Put the vegetables through the medium cutter of the food chopper. Fry them lightly in butter. Add the crumbs, seasoning, beaten egg and milk. Mix thoroughly, and fill into bird.

For Americans who have tasted truly oriental food, not the Americanized variety served in most Chinese restaurants, and have come to appreciate its flavorful art, this oriental stuffing will be a signal for a new variety this Thanksgiving.

Oriental Stuffing

1½ cupfuls brown rice
¾ cupful almonds
1 No. 1 can water chestnuts
1 No. 2 can bamboo shoots
1 No. 2 can bean sprouts
1 cupful shredded celery
2 teaspoonfuls salt
⅛ teaspoonful pepper
2 tablespoonfuls minced onion
¾ cupful fresh mushrooms or No. 1 can mushrooms
2 eggs, slightly beaten
2 tablespoonfuls soy sauce
¼ cupful turkey fat or butter

Cook the rice in boiling salted water until tender. Drain it. Slice or shred the vegetables and nuts. Brown the vegetables and nuts in the fat. Combine with the rice, adding the eggs, salt and sauce. Blend thoroughly. This stuffing may also be baked in a casserole and served as an accompaniment to turkey instead of as stuffing.

The mushroom devotees must not be slighted. There is one thing about mushrooms—you either like them with a passion or dislike them the same way; there seems to be no half-way measure. The following recipe is for the mushroom lovers.

Mushroom Stuffing

1 cupful mushrooms
2 tablespoonfuls butter
1 cup dry bread crumbs
½ teaspoonful poultry seasoning
½ teaspoonful minced onion
¾ teaspoonful salt
1 tablespoonful minced parsley
½ cupful hot water

Brown the celery lightly in butter. Add to the other ingredients, and combine lightly.

Any of these recipes may also be used for ducks and geese, although a somewhat tart dressing complements them more satisfactorily. Here is the place to use your fruit and vegetable stuffings!

One may grow fond of other stuffings, but one becomes addicted to apple-prune stuffing. This recipe, given to me by a friend in whose house it has become a *(Continued on page 1050)*

November Notes

Ewing Galloway

SO ONCE IN EVERY YEAR WE THRONG
UPON A DAY APART,
TO PRAISE THE LORD WITH FEAST AND SONG
IN THANKFULNESS OF HEART.
—Arthur Gulterman

Century-Allen

HOW BLESS'D, HOW ENVIED, WERE OUR LIFE,
COULD WE BUT SCAPE THE POULTERER'S KNIFE!
—John Gay

Century-Allen

WHAT MOISTENS THE LIP
AND WHAT BRIGHTENS THE EYE?
WHAT CALLS BACK THE PAST,
LIKE THE RICH PUMPKIN PIE?
—John G. Whittier

Century Photo

THE FIRST THANKSGIVING, AT PLYMOUTH, 1621.

THE NOSE

A Few Facts Concerning the Structure, Function and Care of This Prominent Appendage

By FASSETT EDWARDS

FEW of us appreciate the extreme importance of a properly functioning nose or realize what it means in the matter of preserving health.

The nose is one of the most important nonvital organs of the body. Its major function is to purify, warm and moisten the air that should pass through it into the lungs. Unfortunately, many persons breathe in part at least through the mouth.

Unless all the air inhaled is freed of dust and is prepared properly, there is danger of contracting pneumonia or other lung diseases. All the air about us, even in the cleanest places, carries more or less dust, most of which is not noticed; and the 54 per cent of our population who live in cities inhale even more dust than do those who reside in the country.

Furthermore, during cool or cold weather, which together make up a considerable part of the year in this northern climate, it is out of the question to try to breathe unwarmed air. Our lungs would soon pain us to an unbearable extent. Strenuous exercise in cold weather brings a sharp pain, stabbing the lungs as the air is inhaled in part through the mouth to meet the respiratory demand. Because of these conditions, natives of the colder climates are equipped with long noses, as compared with the short noses of natives of warmer climates, where nature partially prepares the air for human use. As residents of a cool climate we require plenty of radiator space within our noses.

If we breathe air that has not been suitably moistened the lungs will hurt because of the pain set up by a drying effect. The nose must furnish water to the ingoing air. The delicate tissue of the lungs, which is thinner than the lightest paper, must be kept moist to allow the oxygen of the inhaled air to pass through and enter directly into the blood stream.

Of the various functions of the nose, one which most persons would probably put at the forefront of the classification is that of smell. Today, however, man manages to get along with the sense of smell in a decadent condition. This is the result of evolutionary changes in the nose. Despite all the delightful perfumes and aromas which he senses about him, present-day man probably is not much concerned with odors; assuredly they do not play such an important part as they do in the lower animals.

While it is undoubtedly true that man's sense of smell is abating, it is quite likely that for ages to come he will retain some sense of smell, for it forms a large part of the sense of taste, which seems still to remain in good condition.

Taste is about three-fourths smell. Hence if one loses the sense of smell, which happens often when one has a cold in the head, food will lose much of its usual savor. But why worry about losing the sense of smell? When that evolutionary change occurs we shall have otherwise adjusted our bodies to meet the changed condition.

Another peculiar thing about the sense of smell, one which is difficult for the hard working physiologists to explain, is that memory is more deeply stirred by the function of smell than by any other of the senses, not excepting

WHILE IT IS UNDOUBTEDLY TRUE THAT MAN'S SENSE OF SMELL IS ABATING, IT IS QUITE LIKELY THAT FOR AGES TO COME HE WILL RETAIN SOME SENSE OF SMELL, FOR IT FORMS A LARGE PART OF THE SENSE OF TASTE, WHICH SEEMS STILL TO REMAIN IN GOOD CONDITION.

sight. Did you ever drive along a country road, perhaps about suppertime and catch a saliva-stirring scent of frying ham and eggs as it drifted through the open window of the car? Or perhaps some other odor has taken you back with lightning speed and great clarity to boyhood days on the farm when you pitched hay and milked cows. It would appear that the ability of odors to awaken keen memories is a remnant of those ancient days when the sense of smell was indeed a highly important possession.

WHILE the fact might not be easy to prove to the satisfaction of everybody, it is probable that each of us has a personal odor as much unlike that of any other human being as is our personal appearance. If this were not so, bloodhounds would be unable to track down criminals. These marvelous animals seem not at all confused by cross-scents coming from other than the person they pursue.

Owing to its prominent and exposed position in our make-up the nose receives a disproportionately large amount of damage; and to incur this, one does not need to be a boxer or even a particularly belligerent citizen.

Babies live in a world of bumps and tumbles, a great many of which bring tender little noses into rude and violent contact with something hard. The good mother, careful though she may be, often is entirely unaware of these bumps to the baby's nose. Such accidents will occur despite every care. Later in life the nose specialist finds the damage when the adult demands more breathing space; but by that time the tumbles and knocks of babyhood have long since been forgotten, and the patient cannot recall any accident to the nose that would account for the fact that the central partition is so much out of its normal position.

The noses of eighty boys of athletic inclinations were recently examined. Nearly all of them were more or less imperfect; a good nose was found in this group rather as an exception. A few days later, fifty girls were examined. Nearly all of them had noses of good function.

IN ADULTS the middle partition, or septum, between the nostrils is rarely found to be straight for its entire length. As seen from the outside, a nose may seem to be good; but let a physician who is skilled in such matters examine that nose and the chances are that he will find its interior abnormal. Usually the septum is deviated to the left, leaving the right nostril unduly open. This deviation may have a direct relation to the fact that most persons are right-handed. We more often tumble to the right; consequently

our noses, if hurt, would be pushed to the left side of the face.

In such an obstructed nose, the ingoing currents of air are carried in unequal volume through the nose. After passing through the nostrils the air is united in the back of the throat and goes on to the lungs below. These air currents, as they stream inward through the nostrils, have another and highly important function. The inrushing air must keep open the eustachian tubes, one on either side of the throat, just back of the tonsil space, which run up into the middle ears. The air pressure must be kept the same on the inside and on the outside of the ear drums, or there will be difficulty in hearing. If the air is exhausted within the ear, that is, behind the ear drum, the outer air, which exerts a pressure of 14 pounds to the square inch at sea level and progressively less at higher altitudes, will push in the drum and hold it rather firmly against the tiny bone which stretches half way across it. In such a condition the ear fails to vibrate as sensitively as it would without this restraining pressure. One does not hear so well as usual and is frequently troubled with "head noises."

If the currents of air entering the throat by way of the nostrils do not pass with equal force and volume across the throat end of the eustachian tubes in order to ventilate the middle ears, the tube that has the smaller amount of air flowing across its inner end will be kept in a constant partial vacuum, and by that means the air will be removed from the inner ear. When the air pressure is lessened within the eustachian tube it collapses, and trouble begins.

In cases of unequal nasal-air capacity, usually the left ear will be found to be more or less hard of hearing, following the rule that the septum usually is deviated to the left. There are several ways to correct a deviated septum, but the best method for the individual case must be left to the decision of the physician.

If the nose is defective in function the ears will eventually lose their acuteness. It is unwise to neglect the nose. Ears that once become hard of hearing are difficult to restore to proper function. It is well to recall the old adage about a stitch in time.

One of the best nasal operations is submucous resection. The septum is cut away from beneath its overlying mucous membrane. The mucous membrane is not removed, but a small slit is cut in one side of the irregular septum, and through this little opening the deformed partition is removed piecemeal. The opposite or intact side of the septal mucous membrane is not cut, so that when some of the bone and cartilage of the septum are removed the right and left sides of the mucous membrane fall together, adhere and within a few days are grown firmly together. The operator is careful not to remove too much tissue but always to leave adequate support for the bridge of the nose. By this method the turbinate bones, the small bones inside the nose that form the warming, cleansing and moistening part, are not disturbed; nor is there any disturbance of the natural balanced relation of air space to nasal mucous membrane.

In the past, when less was known about nasal surgery, it was a rather common practice to remove pieces of the turbinate bones. Though this procedure left ample breathing space it impaired the already mentioned functions of the nose. The result of this unduly open nose was that the back of the throat was constantly irritated and left too dry by the entrance of unprepared air. From this came a hacking little cough and a constant desire to clear the throat, because the person so afflicted felt as if his throat always held something that might be removed if he persisted in trying to clear it. Such attempts, however, only made the condition worse. Specialists are agreed that it is not good nasal surgery to remove more than a very small amount of nasal mucous membrane, and none at all if that is possible.

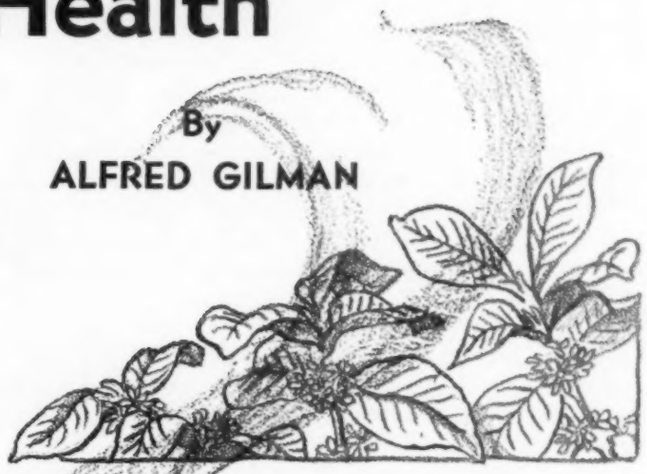
Since self medication of the nasal passages is accompanied by the danger of using too much force, which may send the fluid up into the middle ears through the eustachian tubes, one should be exceedingly gentle when spraying the nose. Likewise much damage frequently is done to ears by forceful and overfrequent blowing of the nose, particularly when one has a cold. Many cases of abscess in the middle ears have resulted from too much and too strong use of a handkerchief, particularly when there is an acute cold in the head.

One of the many curiosities of our body is that the nose, in company with the ears, never ceases to grow although such growth after adulthood is exceedingly slow.

Caffeine and Health

Part II

By
ALFRED GILMAN



THERE are types of individuals who are so constituted that they react unfavorably to stimulation. The use of caffeine-containing beverages, according to practically all authorities, should be denied to such persons. Dr. G. M. Niles, in an article entitled "The Case For and Against Coffee," states:

> Speaking generally, a small amount of not-too-strong coffee, drunk in the morning, or the middle of the day, exerts no ill effects on a healthy body or a normally-strung nervous system; . . .
>
> For those who are temperamentally unstable, or whose nerves are "set on a hair trigger," coffee has no proper use. It is a drug no matter under what flag it sails, and it tends to induce a drug habit just as any other stimulant.

Dr. E. E. Cornwell, writing on the subject "Coffee in Health and Disease," shares this opinion:

> It is obvious that some people should not drink coffee at all . . . nervous people generally. Nor should those drink it who cannot do so in moderation.

Dr. A. Martinet, in his second volume of clinical therapeutics, entitled "Treatment of Symptoms and Diseases," states that in neurasthenia, the ingestion of all substances prejudicial to the nervous system should be avoided. Tea and coffee are included in his list. An article on caffeine in *The Journal of the American Medical Association* also includes neurasthenia among the conditions in which the use of caffeine is detrimental.

In speaking of the stimulating action of caffeine, Dr. Torald Sollmann makes the following statement:

> These effects may be useful in certain conditions, as in those exposed to severe hardship, hunger, fatigue, etc., but ordinarily they are mere luxuries—pleasant but superfluous. They may do no harm if the consumption is kept within bounds; but nervous individuals who are the most apt to be injured by caffeine, are most likely to exceed these bounds.

The type of person who should avoid the consumption of caffeine can easily be recognized from the description of Drs. McCollum and Simmonds:

> People are not all made alike. Some have stable nervous systems and are capable of remaining unperturbed by trivial occurrences of daily life. They may be designated as the "thick-skinned" variety of the genus homo. Others may with equal propriety be called "thin-skinned," since they cannot prevent the intrusion upon their consciousness of the thousand and one little stimuli which pass unnoticed by those with better protected nervous systems. We have in mind persons who are annoyed by the playing of children, who are conscious of noises which are unnoticed by others, who cannot sit still, but prefer a rocking chair so they may remain active when they might rest, who keep the hands moving, etc. Such people not infrequently find themselves in this condition because of cumulative fatigue. Fatigue of the nervous system differs from that of the muscles in that in nervous fatigue we do not tend to rest but rather to be more easily irritated. Smaller stimuli produce an effect and elicit a greater response than formerly before the nervous system became fagged out. Such people tend to lie awake after going to bed, to review the activities of the day, and then to lay plans for the work of the morrow.
>
> The latter type of person is likely to be more unfavorably affected by tea or coffee than is one who is stable nervously. Sleep is interfered with, and all the faculties are brightened. The tendency is to keep on being mentally active rather than to encourage rest. Such conditions cannot but make worse a condition which is already annoying, and which tends to interfere with efficiency as well as with the sense of well-being.

In addition to its action on the central nervous system, caffeine affects many other organs of the body in a variety of ways. In the amounts in which caffeine is usually taken these reactions do not harm the healthy individual. In certain disease conditions, however, the action of caffeine may tend either to intensify or to relieve various symptoms. Consequently there are instances in which caffeine is administered therapeutically to persons suffering from certain pathologic conditions. In other cases the use of caffeine aggravates the existing disorder.

The action of caffeine on the circulatory system is a complicated one, being harmful in

certain respects and beneficial in others. It is a heart stimulant, a result, in all probability, of its irritating action on the heart muscle. As such, it is used in medicine in cases of acute heart failure. Caffeine also improves the nutrition of the heart by dilating the coronary arteries, the vessels which supply blood to the heart muscle. Its action on blood pressure is a disputed one, but recent investigations show that when caffeine is taken in small amounts the blood pressure rises. Let us list various circulatory disturbances and study the action of caffeine in each of them.

ONE of the most common of circulatory disturbances is hypertension, or increased blood pressure, almost invariably associated with arteriosclerosis, a pathologic condition in the arteries which causes them to lose their elasticity. The etiology of this disease is obscure. Various constituents of the diet, including coffee and caffeine, have been claimed to be instrumental in its origin. There is no evidence, however, to support such contentions. Once the disease is established, the consumption of caffeine is contraindicated and denied to patients by most physicians. There are two reasons for such precaution. Obviously, in cases of high blood pressure one should avoid all substances which tend to aggravate this condition. Caffeine is definitely a stimulant to the circulatory system. In addition, the hypertensive individual should be kept quiet and unexcited. To accomplish this, sedatives are a common form of medication. The folly of overcoming the action of the sedative by an inclusion of a stimulant in the diet is obvious.

Dr. Stieglitz, in his book on hypertension, is perhaps one of the most generous of authorities in respect to the use of caffeine by individuals with high blood pressure. He permits the use of coffee in the morning, not that it is harmless but because most individuals of fairly advanced age are so habituated to the use of this stimulant at the beginning of the day that its withdrawal might prove more upsetting than its consumption. He forbids the drinking of caffeine beverages in the afternoon and evening.

In Cecil's "Textbook of Medicine," Dr. Malcolm Goodridge says of arteriosclerosis:

> Tea and coffee may be taken in moderation, unless their use is contra-indicated by insomnia, tachycardia or numerous premature systoles. One of the caffeine-free preparations should be substituted under these conditions.

Other physicians pursue a more drastic course, forbidding the use of all caffeine-containing beverages. In an article in *The Journal of the American Medical Association* high blood pressure and arteriosclerosis are listed among the contraindications for caffeine.

In any condition in which the heart is irritated the stimulating action of caffeine on this organ is of course to be avoided. Thus "palpitation" and "irritable heart" are also included by *The Journal of the American Medical Association* as contraindications for the use of caffeine. The consumption of strong coffee is said to be responsible at times for cardiac arrhythmias. Whenever such conditions exist the intake of caffeine should be considered as a possible etiologic agent.

Caffeine has a favorable action in cases of angina pectoris and has been used therapeutically in that condition. It acts to dilate the coronary arteries and improve the nutrition of the heart. Also, in cases of cardiac decompensation, it is sometimes used in conjunction with digitalis. It strengthens the beat because of its direct action on the cardiac muscle and is extremely valuable when one wishes immediate effects. Caffeine is usually administered therapeutically in the aforementioned conditions as a salt of the pure drug.

One of the most definite and best known actions of caffeine is its effect on the kidney. This drug is a powerful diuretic, acting to cause a marked increase in the output of urine. The normal intake of caffeine does not harm kidney tissue, and it is only when extremely excessive doses are taken that any deleterious effects on the renal cells can be observed.

The diuretic action of caffeine is of value in medicine when it becomes necessary to rid the body of large amounts of accumulated fluids. However, because of the central stimulating action of this drug the use of caffeine for this purpose is often disadvantageous. Consequently it is displaced in therapeutics by other compounds which have the same action on the kidney but do not affect the central nervous system.

THE individual who overindulges in caffeine-containing beverages becomes acutely aware of this diuretic action. Because of it, much more urine is excreted than would normally result from the drinking of an equal amount of fluid not containing this drug. Many clinical cases in which the chief complaint is frequency of micturition can be definitely traced to the indiscriminate use of caffeine. On withdrawal of the drug from the diet such symptoms rapidly disappear.

Because of this action of caffeine on the kidney there are certain instances associated with genito-urinary disease in which a daily intake of caffeine is contraindicated. In any condition characterized by frequency of micturition it is obvious that the action of caffeine will serve only to intensify this symptom. As a rule,

most physicians consider any acute genito-urinary infection as contraindicative to the use of any diuretic substance. This, of course, includes all acute renal conditions. In cases of chronic kidney involvement, opinion is divided as to the wisdom of caffeine ingestion. One must weigh the advantages of the flushing action of this drug on a sluggish organ, against the possibility of the undue stimulation of tissue in a chronic diseased state.

The work of various investigators has been unanimous in the conclusion that the ingestion of caffeine increases the excretion of uric acid. The contributions of Mendel and Wardell, Myers and Wardell, and Clark and de Lorimer may be cited in this regard.

This observation is of extreme practical importance when considered in connection with gouty disorders, which are characterized by a deposition of urates. Drugs which increase the output of uric acid without themselves contributing to an increased production are valuable therapeutic agents in this respect. The increased uric acid output after the ingestion of caffeine, however, is caused by an augmented production. This has been shown to be due to two factors: 1. A small portion of the caffeine ingested is changed to uric acid in the body and excreted as such. 2. Caffeine stimulates body metabolism, which results in a greater uric acid production.

ONE of the basic principles of the dietary regimen prescribed for persons suffering from gout is the elimination of all substances which increase the formation of uric acid. Although the amount of uric acid that can result from the daily intake of caffeine beverages is small, most authorities take the precaution of either restricting or eliminating tea and coffee in the diet of individuals suffering from gout.

It has been shown by Benedict and Carpenter that caffeine given as coffee is capable of raising the metabolic rate of an individual almost 10 per cent because of its general stimulating action. Of less significance is a statistical study of Hackett, in which it was observed that college women who drank coffee daily had a slightly higher basal metabolism than noncoffee drinkers. Although this effect can be generally disregarded it is sufficient to warrant the exclusion of coffee from the diet of those individuals suffering from conditions resulting in a high metabolic rate, as exemplified by thyrotoxicosis, in which complete mental and physical rest is essential.

In view of the aforementioned action of caffeine, namely, its effects on the circulatory system, kidney, metabolism and uric acid production, Dr. O. T. Osborne, author of "The Principles of Therapeutics," is of the opinion that the aged individual should be most circumspect in regard to consuming caffeine beverages. He summarizes his contentions in a paper entitled "On the Harm of Caffeine in Old Age":

> The aging individual . . . feels the need of stimulation. He has learned that he can get this from coffee and tea. But he also learns in the majority of instances, that coffee or tea taken at the evening meal, which for many years has not prevented sleep, now causes him to be wakeful. . . .
>
> The action of caffeine is to increase general nervous irritability, cause palpitation, sleeplessness, cerebral irritability, polyuria and especially to stimulate the thyroid and parathyroids to abnormally increased activity, with the result of more nervous irritability and muscular irritability and trembling. Caffeine often raises the blood pressure when an increase in blood pressure is not needed.
>
> Caffeine (coffee and tea) in any form is likely to increase the production of uric acid which in old people is especially likely to irritate the kidneys and to cause muscle and joint pains.
>
> Therefore it is evident that, except in an emergency for caffeine therapeutic stimulation, coffee and tea can do nothing but increase the troublesome symptoms of old age.

When we study the literature pertaining to the effects of caffeine on the physiologic functions of the stomach, we are met with a mass of conflicting evidence. Most of the scientific work has been chiefly concerned with the effects of coffee drinking, and it is from this wealth of material that the conclusion is drawn that coffee aids digestion. This statement is seemingly based on the fact that gastric acidity is increased after drinking coffee, as a result of the heightened activity of the glands. To the normal individual, such a stimulus is unnecessary, for in the ordinary sequence of anticipating and enjoying food, the gastric glands are sufficiently stimulated.

THIS action may be of some value to the person suffering from hypo-acidity, an insufficiency of hydrochloric acid secretion. In conditions in which the secretion of acid by the stomach is excessive, as in cases of gastric ulcer, the use of a stimulant of this nature is contraindicated; tea and coffee are often excluded from the diet of individuals suffering from this complaint. That caffeine is the substance in coffee that is responsible for this action on the gastric glands has not been definitely proved. Whereas some investigators claim that when given as coffee this drug stimulates gastric secretion, others conclude that the stimulating action is the result of additional compounds present in these beverages. If it is the opinion of a physician that the use of coffee should be discontinued in the presence of gastric ulcer, in our present state of knowledge it is doubtful whether any decaffeinated beverages should be substituted.

In conditions of the gastro-intestinal tract characterized by a "nervous" rather than an

organic etiology, that is, so-called nervous indigestion, the use of stimulants is usually denied.

In view of the foregoing discussion and the fact that children are in general more sensitive to drugs than adults, it is obvious that caffeine-containing beverages do not have any place in the dietary of children. The child is excessively stimulated by small amounts of caffeine both by its central and by its diuretic action. What is more, the consumption of coffee and tea leads to a diminished intake of calcium-containing beverages, which are so essential to normal growth and development.

There are no specific indications against the intake of caffeine during pregnancy. However, it is obvious that at such a time one should be extremely cautious to avoid any excessive stimulation.

During lactation the presence of caffeine has been demonstrated in the milk of mothers who have taken beverages containing it. It was present in such small amounts, however, that it is doubtful whether it could have any effect on the nursing infant.

Caffeine should be recognized as a stimulant to the central nervous system, the circulatory system and the kidneys. As such, it is a valuable drug, extremely useful in therapeutics. Its place in the daily dietary of a normal individual is difficult to define. To recommend complete abstinence is almost as extreme a course as is characterized by other dietary fads. Yet it is logical to state that a healthy adult is better off without a stimulant and does not require its daily use. On the other hand, there is no evidence to prove that the judicious use of a stimulant, taken at the proper time of day, is in any way harmful.

To indulge in caffeine indiscriminately is a confession of ignorance of the action of this drug. Surely excessive stimulation should be avoided. There are also pathologic conditions in which the properties of caffeine tend only to intensify the unpleasant and undesired symptoms. These have been briefly summarized.

The large number of beverages containing caffeine and the constant attempts being made to introduce new preparations to the public should be kept in mind. Most drinks which promise the consumer new energy and strength rely on caffeine for their action. The intelligent person should realize that the extra power and energy are not supplied by the beverage but are taken from his own physiologic reserve.

The Problem of the Tired Butler

(Continued from page 986)

it, we find that he tires easily without any apparent reason, that he recovers rapidly, that it is muscular fatigue and that he isn't sick in appearance. What are the possibilities and probabilities?

"Your reference to the wine cellar, Inspector, was, of course, to be thought of, had I not known that Wilks never touched anything. Knowing the circumstances, I knew that Brown was an easy master and that Wilks was not being worked to the point of exhaustion, so it had to be that there was really something wrong with the old chap. As he was an old fellow one of the things to be thought of as not only a possibility but also a probability was arteriosclerosis, which every one commonly speaks of as hardening of the arteries."

"I can see that," I said. "I've gathered here and there that that is a common, even natural thing to expect with age, and I've known people whose arteries must have been as hard as bricks, but surprisingly enough they were as active as anybody I ever saw."

"Yes, in a certain degree, arteriosclerosis is an inevitable part of growing old, for the blood vessels grow old just as the rest of the body does. But it doesn't necessarily follow that one will be much the worse for it for, as one grows old the activities usually decrease correspondingly so that one doesn't need the active circulation of youth. Of course, if the vessels are very important ones or in important locations where interference with the circulation will disturb important or essential functions, then there may be trouble. For example, when the blood vessels of the brain carry out their functions imperfectly there may be intervals when the resultant anemia of the brain may cause more or less transient symptoms, but not, however, the sort that Wilks had."

"I guess I'm away out of my precinct," said Carey dubiously, "but blamed if I can see how anemia—you told us once that was a lack of blood—could make a man tired."

"If you'd remembered what I think I told you about the function of the blood as an oxygen carrier and the importance of oxygen as a source of energy by making combustion possible and complete," smiled Trebor, "you would see how a general anemia, by interfering with oxygen transport, could make a man feel languid and without pep. We are talking of a local anemia now, and a local anemia in the brain could easily interfere with efficiency and especially with muscular efficiency.

"You see, the brain can be looked on as the main power house of the nervous system. It is the place from which the wires, that is, the nerves, go out to all the outlying sections, and consequently it is the place from which the impulses which control sensation and muscular movements are sent out traveling along the

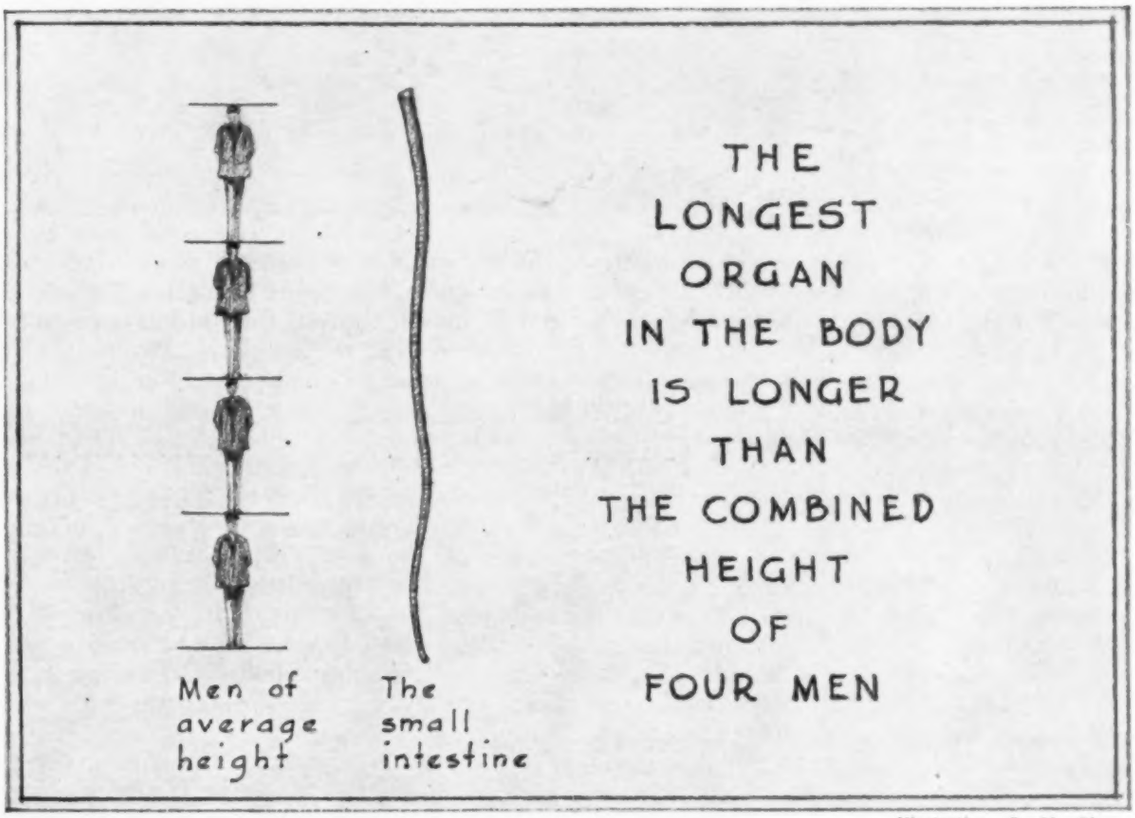
nerve trunks. Now nervous tissue, like all highly specialized tissue, is rather sensitive. It won't stand for much interference. If it doesn't get its proper blood supply and hence its proper nourishment, not to speak of the accumulation of waste which the blood should carry away, it soon begins to show the effects by failure to function properly. The impulses sent out are either weakened or disordered, or they may not go out at all. Then you have disturbances of the mechanisms which they should initiate and control. Is that clear?"

Carey nodded agreement.

After a long sip from his glass, Trebor continued: "For various reasons, while that was a possibility in Wilks' case it wasn't a probability, so I soon dismissed it. I thought of a possible tumor in the brain, but that didn't seem likely because there were certain symptoms that go with that which he did *(Continued on page 1045)*

Curious Stories About Health

The Third of a Series by MELVIN PRICE ISAMINGER



Illustration, O. M. Olsen

THE SMALL intestine is the longest organ of the body. If it were placed on a longitudinal plane, its length, in the aggregate, would be more than four times the height of a man. Twenty-five feet of this digestive tube may be found in the abdominal cavity of the average adult.

In accordance with the size of the individual the small intestine varies in its dimensions, some persons having as little as 15 feet of it and others as much as 32 feet. This elongated digestive canal has its largest diameter at its beginning; that is, at the lower outlet of the stomach at a point called the pylorus, where the diameter is about 2 inches. From the stomach it extends irregularly and inextricably, being somewhat crowded by the presence of other organs, upward, downward and horizontally, gradually diminishing in diameter until it measures only 1 inch when it terminates in the large intestine.

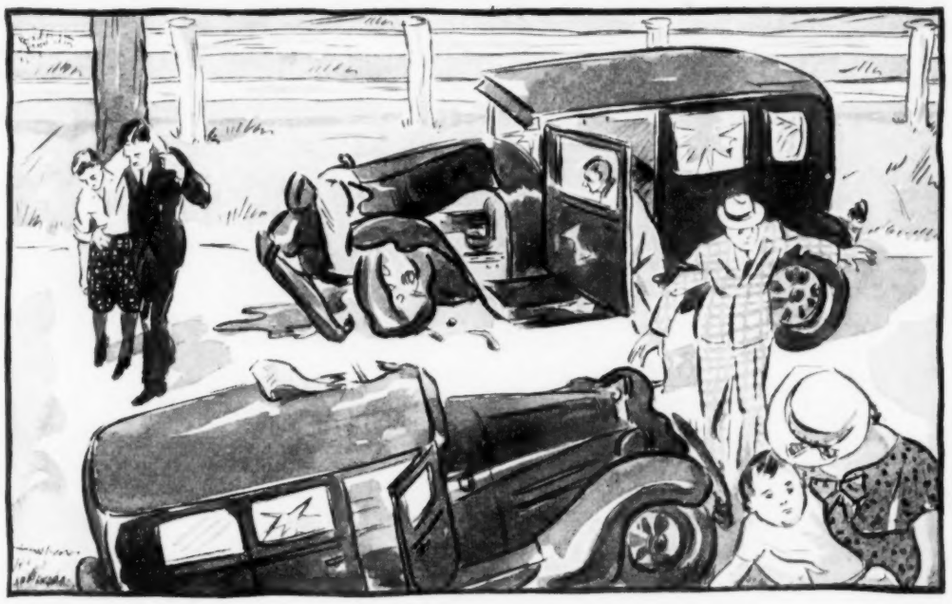
Contrary to popular opinion more digestion takes place in the small intestine than in the stomach. In fact, digestion has only begun when the food leaves the stomach.

A little starch is changed to sugar in the mouth by the aid of the saliva before it is passed on; all the food is broken up into smaller particles in the stomach, and by the action of an enzyme called pepsin the digestion of protein, which is found in meat, eggs, fish and some other foods, is started. Practically all the digestion is completed, however, in the small intestine, and there the food is prepared for absorption into the blood stream.

If You Had an Accident

By

ROBERT H. KENNEDY



THE PROGRESS OF THE AUTOMOBILE IN POPULARITY AND SPEED BRINGS A NEW HAZARD, FAR MORE DANGEROUS THAN THAT OF THE FACTORY, THE MINE AND RAILROAD.

ACCIDENTS are all too common in this machine age. The National Safety Council and other organizations are making valiant and successful efforts to decrease their frequency, but meanwhile new ways of being injured are constantly arising. Formerly the chief sources of accident were the factory, the mine and the railroad. Safety devices of most intricate and clever nature have been developed, especially in the last generation, which have reduced tremendously the incidence of accidents from these sources. The progress of the automobile in popularity and in speed has given a new hazard, far more dangerous than that of the factory, the mine and the railroad. During the year 1934 there were 53,000 deaths in the United States from motor vehicle and other public accidents. This is a greater loss in man power in one year than the battle losses of the entire American Army during the World War. In addition, more than 1,200,000 persons sustained disabling injuries in automobile accidents during the same year. Safety organizations are doing their best to cope with this unnecessary loss, and in time the curve of death and injury will no longer show a steady rise each year. When automobile traffic has been more successfully regulated, perhaps the air will be so filled with planes that traffic congestion in the air will be as great and accidents as frequent as they now are on land.

It seems therefore that in spite of efforts at prevention there will be a considerable number of accidents for years to come. Any one of us may be unfortunate enough to be concerned in one at any time. What will happen to us if we are? Many injuries are comparatively minor affairs, such as sprains, bruises or cuts, which will respond favorably to simple first aid or will not be made worse if the patient is moved to the nearest doctor or hospital. Broken bones are more serious. It is estimated that between 1 million and 1½ million fractures occur in this country each year. In many of these cases the patient is not harmed in transport to the nearest professional aid. One type, however, presents a grave problem; namely, fracture of the long bones of the extremities, that is of any bone between the hip joint and the ankle joint or between the shoulder and the middle of the forearm. By conservative estimate such an injury occurs about 300,000 times each year in this country.

As soon as a long bone is broken, the pull of muscles tends to cause one fragment to ride by the other. Considerable pain exists, and injury to muscle is always present. Both of these conditions cause shock. Any movement of the part causes increased pain, damage and shock. The kind hearted bystanders try to make the person more comfortable by moving his position, as, for example, by straightening out a crooked leg. These untrained efforts may cause greater damage or even allow the bone to pierce the skin, which makes the accident many times more serious than if the skin is not broken and may even endanger life in what otherwise might have been a simple problem. In any necessary moving of the patient, pull, or traction, should be exerted on the arm or leg to overcome the muscular pull. This prevents the bones from moving about and causing further damage, relieves pain and diminishes shock. Board

splints do not properly answer the purpose, nor is the binding of one leg to the other sufficient protection. Neither of these methods prevents increased injury, pain and shock, but constant steady pull does so. It is possible to obtain this pull by hand, and this is better than any board splint; but it is impossible to maintain steady hand pull for any great distance or for a length of time. Therefore splints have been devised by means of which a steady pull is maintained. This is known as the fixed traction method of transportation. These splints are not patented and have been used for nearly twenty years. They are readily applied by the layman after a short training. They are often the means of saving life; and, since they lessen the time before a person is sufficiently recovered to return to his usual occupation, they are also a means of great economy.

DURING the World War one of the most serious injuries encountered was gunshot or shell wounds of the extremities. In the middle years of the war a fixed traction splint was devised and placed in general use. It was applied by the stretcher bearers in the front line before the wounded man was moved from the point at which he had fallen. It has been stated that the loss of life was reduced from 80 to 20 per cent by this method of transportation.

The same method is practical for use in this country in the accidents of everyday life. One observer has estimated that by use of this method of transportation an average of $100 would be saved in the treatment of each fracture of the extremities. This means an annual saving to the country's pocketbook of $30,000,000 by a simple procedure.

The personnel of our regular army is trained in this method. First aid crews in some of our mines and factories have used these splints for many years. In some cities, ambulances are manned by policemen or firemen; and in a few of these places, persons with fractures are efficiently transported. In a comparatively small proportion, accident calls are answered by ambulances manned by doctors. In an increasing number of instances these ambulances are equipped with the necessary splints.

The great problem of the present-day accident is how to handle it properly on the city street or the country highway. Medical men rarely see the injured person at the site of accident but only after he has been brought to the office or to a hospital. First aid is and always will be rendered largely by the general public. The greatest opportunity for doing damage and the finest chance to do good in fractures of the extremities occurs in the time elapsing between the moment of accident and arrival at that place where final treatment will be commenced. The benefit or the damage depends on how the injured person is transported.

If you should be unfortunate enough to be in an automobile accident on a main highway and break your thigh bone, how would you be handled? In all probability other cars would stop; some one would agree to carry you in his car to the nearest town, and well meaning persons would lift you carefully, trying to support your leg but not exerting any pull on it, thus allowing the bones to churn about in the muscles, causing further damage and excruciating pain. You would be placed in the back seat of the automobile, the broken thigh being doubled up like a jack-knife. Sometimes this forces the bone through the skin and even through the clothing, producing a compound fracture. Every bump in the road and every turn may cause more damage and pain.

Or perhaps a highway patrolman may happen along and take charge. He may commandeer a private automobile or send for an ambulance. In most parts of the country this will mean a funeral director's ambulance, supplied with little equipment and no trained personnel for properly transporting the injured. The procedure will be the same as that just described except that you will be able to lie flat instead of being "jack-knifed" in the rear seat. If the accident is within the confines of a city the ambulance responding may be manned by members of the police or fire department or even by hospital interns. Some of these ambulances are supplied with proper traction splints and trained personnel. You have a right to ask that you be properly splinted before you are moved.

THE only way in which these accidents can be properly handled is to have the necessary splints made available at frequent, known centers, to have the traveling public understand what is necessary and to have a considerable group trained in this simple application. It is important to remember that the traction splint, even though indifferently applied, makes the danger in transport less than that incurred by moving either without a splint or with one which does not exert continuous pull.

In the past few years the American Red Cross has taken an interest in this work. A description of the details of the application of the splint is found in their First Aid Textbook. They are training their official instructors to be prepared to teach this method in Red Cross classes. More than 500,000 persons have been trained in Red Cross classes in the past.

In the last year the Boy Scouts of America have commenced an active campaign in this direction. The method is taught in their professional schools, demonstrated in their conventions and in conferences for scout masters. In many communities whole councils of boy scouts have had the method demonstrated to them. Since there are at present about 1 million

American boy scouts, it should mean in a few years that every one will have a better chance after an automobile accident.

In some states the highway patrol has already been trained in the proper method of moving persons with broken bones. In some communities, training has been given to members of the police and fire departments as well as to some private ambulance drivers.

THE training can do little good unless the splints are made available. These can be brought from a surgical supply house or can be made at slight cost by any good mechanic if the measurements are furnished to him. All ambulances should carry these splints; but as previously stated, the majority of accident victims are transported in private cars. It seems reasonable that certain filling stations should be designated as first aid posts along the highway, that these stations should be equipped with traction arm and leg splints and that the personnel should be trained to apply them. The traveling public should be willing to pay a charge to the filling station for such service. This in no way constitutes treatment of a fracture but is merely a means of transporting in greater comfort and with less likelihood of damage. When the splints arrive the application takes only three or four minutes. Delay for this purpose may save weeks in a hospital.

Are you willing that you and your family shall be exposed to the unfortunate results of an automobile accident in which a person with broken bones has not been transported in as efficient a manner as is known? In your own community how is a person who has suffered an accident carried to the hospital from the site of the accident? Is your municipal, police, fire, hospital or private ambulance equipped with traction splints? Is the driver or any one accompanying him trained in the application of these splints? What does the highway patrol in your state or county know about this? Has your local chapter of the American Red Cross done all that it can in this matter? If there is a boy scout in your family, has he received training in properly moving the injured? Only by looking into these matters can you be assured of greater safety for the traveling public in your community and more security for yourself when you are traveling elsewhere.

The greatest opportunity for better results when bones are broken lies in the attitude of the general public toward seeing that these injured persons are transported to the doctor for his treatment in the most comfort and with the least added injury.

Coming Events Cast Their Shadows Before

In the December Issue, HYGEIA Forecasts A MERRY CHRISTMAS

"Not for anything would I discourage one single tradition of Christmas," writes *Melba Acheson* in "For a Merry Day After." "Aunts and uncles from far corners of the earth, important whisperings, Christmas eve services at the church, plump stuffed turkeys, plum pudding, the excited creaking of the stairs in the cold Christmas dawn, the smell of pine—the memory of these and more, I would not trade for all the gold of France. Christmas is 'special,' and special it should remain. . . . This doesn't mean that I'm not in favor of using a little common sense along with Christmas—common sense all the way through it, from the kinds and numbers of gifts one gives, on through the amount of dinner one eats. But that doesn't detract one whit from its pleasure; in fact, it adds to it, and one has all the pleasure without the pain."

"Many couples have brought to their lives a new richness, and to one or more children new security, opportunity and happiness through adoption. But adoption, like marriage, is not a venture to be undertaken without carefully weighing the elements involved, and this means particularly the human eicments." Because of the serious nature of the venture, *Dr. R. L. Jenkins* gives a set of rules for prospective adoptive parents in his article, "On Adopting a Baby."

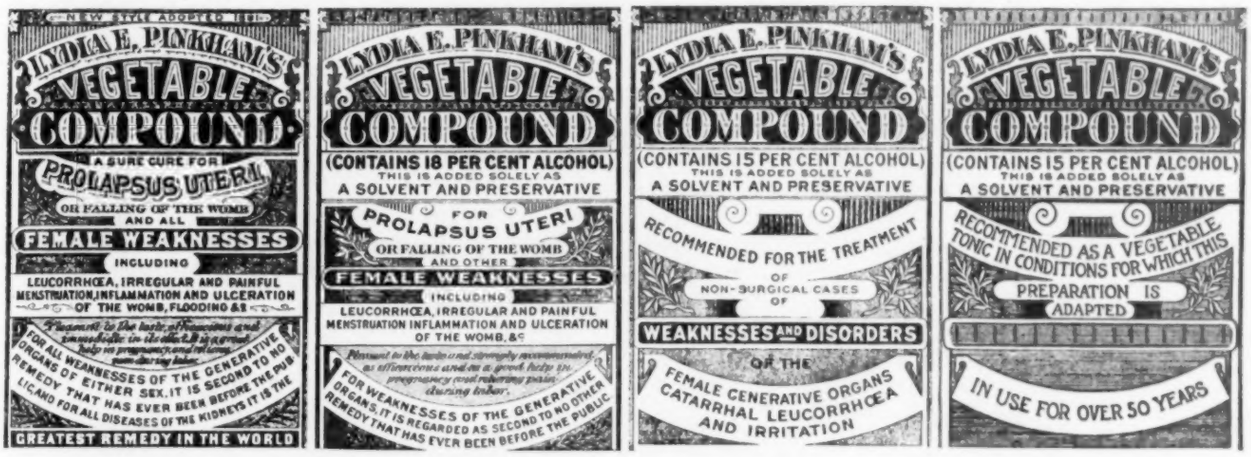
"Sunday, Monday, every day's Funday in the life of a child. But childhood toys have a large share in making the man and woman, and they exert a powerful influence on their lives. By their selection of toys, parents can make or break their children," writes *Margaret McEachern* in a discussion of toys as "tools of educative play." Since a good toy must answer certain specifications, she points out what to avoid and what to seek in choosing playthings for the child at his various toy ages and gives an appropriate Christmas list for each stage.

Dr. Claude Lillingston begins a new series of articles, entitled "Health Hints for Travelers." "In the past," he declares, "those who left home to please themselves or their families were in the minority. . . . It was a rather static world. It must also have been a very dull world. All this is now changed. Every one travels, not merely from town to town but from country to country. With all the world on the run it is interesting to examine the influences, good and bad, of travel on health, and to see whether something cannot be done to mitigate the latter." With this in mind, Dr. Lillingston considers where to travel; how to prepare for a journey; vaccination against smallpox, typhoid and other diseases, and various other pertinent points which should occupy the thoughts of the prospective traveler.

Pinkham's Vegetable Compound

Some Old and Some New Information on a Widely Advertised "Patent Medicine"

By ARTHUR J. CRAMP


LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
A SURE CURE FOR
PROLAPSUS UTERI
OR FALLING OF THE WOMB
AND ALL
FEMALE WEAKNESSES
INCLUDING
LEUCORRHŒA, IRREGULAR AND PAINFUL MENSTRUATION, INFLAMMATION AND ULCERATION OF THE WOMB, FLOODING &c
FOR ALL WEAKNESSES OF THE GENERATIVE ORGANS OF EITHER SEX, IT IS SECOND TO NO REMEDY THAT HAS EVER BEEN BEFORE THE PUBLIC
GREATEST REMEDY IN THE WORLD
LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
(CONTAINS 18 PER CENT ALCOHOL)
THIS IS ADDED SOLELY AS
A SOLVENT AND PRESERVATIVE
FOR
PROLAPSUS UTERI
OR FALLING OF THE WOMB
AND OTHER
FEMALE WEAKNESSES
INCLUDING
LEUCORRHŒA, IRREGULAR AND PAINFUL MENSTRUATION INFLAMMATION AND ULCERATION OF THE WOMB, &c
FOR WEAKNESSES OF THE GENERATIVE ORGANS, IT IS REGARDED AS SECOND TO NO OTHER REMEDY THAT HAS EVER BEEN BEFORE THE PUBLIC
LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
(CONTAINS 15 PER CENT ALCOHOL)
THIS IS ADDED SOLELY AS
A SOLVENT AND PRESERVATIVE
RECOMMENDED FOR THE TREATMENT
OF
NON-SURGICAL CASES
OF
WEAKNESSES AND DISORDERS
OF THE
FEMALE GENERATIVE ORGANS
CATARRHAL LEUCORRHŒA
AND IRRITATION
LYDIA E. PINKHAM'S
VEGETABLE
COMPOUND
(CONTAINS 15 PER CENT ALCOHOL)
THIS IS ADDED SOLELY AS
A SOLVENT AND PRESERVATIVE
RECOMMENDED AS A VEGETABLE TONIC IN CONDITIONS FOR WHICH THIS
PREPARATION IS
ADAPTED
IN USE FOR OVER 50 YEARS

PHOTOGRAPHIC REPRODUCTION (REDUCED) OF FOUR BOTTLE LABELS FROM LYDIA E. PINKHAM'S VEGETABLE COMPOUND. READING FROM LEFT TO RIGHT, THE FIRST LABEL WAS USED BEFORE THE PASSAGE OF THE PRESENT FOOD AND DRUGS ACT (PRIOR TO 1906); THE SECOND WAS USED ABOUT THE TIME THAT ACT WENT INTO EFFECT; THE THIRD SHOWS THE CHANGE MADE AFTER THE COURT DECISION THAT THE CLAIMS MADE ON OR IN THE TRADE PACKAGE WERE FALSE AND FRAUDULENT; THE FOURTH IS THAT USED AT THE PRESENT TIME AND, EXCEPT FOR THE DECLARATION OF ALCOHOL, IS ESSENTIALLY MEANINGLESS. THE CHANGES FROM BLATANT FALSEHOOD TO INNOCUOUSNESS ILLUSTRATE WHAT THE NATIONAL FOOD AND DRUG OFFICIALS HAVE BEEN ABLE TO ACCOMPLISH WITH THE CLAIMS MADE ON THE TRADE PACKAGE, THE ONLY ADVERTISING THAT THE NATIONAL FOOD AND DRUGS ACT CONTROLS. A SIMILAR CLEAN-UP COULD BE MADE IN "PATENT MEDICINE" NEWSPAPER AND RADIO ADVERTISING IF THE INADEQUATE POWERS OF OUR PRESENT LAW WERE EXTENDED TO COVER ALL DRUG ADVERTISING.

"LYDIA E. PINKHAM'S Vegetable Compound" was one of the scores of "patent medicines" dealt with by Mr. Samuel Hopkins Adams in his notable series on "patent medicines" and quackery, published many years ago under the general title "The Great American Fraud." Mr. Adams pointed out at the time that the Pinkham preparation was one of the "bracer" type of "patent medicines." Mr. Adams also dwelt at some length on the point that although Lydia E. Pinkham died in 1883, yet for years after her death the Pinkham advertisements said, "Write to Mrs. Pinkham." This, technically, could have been said to be accurate in that there was a Mrs. Pinkham, the widow of the son of Lydia E. Pinkham. But as Mr. Adams said in his article, which was published in 1906: "The great majority of the gulls who 'write to Mrs. Pinkham' suppose themselves to be addressing Lydia E. Pinkham, and their letters are not even answered by the present proprietor of the name, but by a corps of hurried clerks and typewriters."

In 1912 the chemists of the British Medical Association analyzed Lydia E. Pinkham's Vegetable Compound. The analysis showed that the Pinkham preparation contained more than 19 per cent of alcohol by volume and less than 1 per cent of solid substance, the latter evidently made up from vegetable extractives. As it appeared from this that the stuff apparently did not contain enough drugs to permit it to be sold as a medicine and to be exempt from the internal revenue liquor tax, the attention of the Commissioner of Internal Revenue was called in 1913 to the analysis. The Commissioner stated that the preparation would be analyzed and that a report on the matter would be made. After several months a communication was again sent to the Commissioner. The reply then came that the Internal Revenue Department had had the product under consideration and that at the time of writing, "as such preparation is *now* [italics mine—A. J. C.] compounded and placed on the market, it measures up to the standard adopted by this office." This statement was made June 9, 1914. Shortly thereafter bottles of Lydia Pinkham's Vegetable Compound bore a special label, and the statement appeared: "New form adopted June 12, 1914." The special label warned the purchaser that the preparation would have "a different taste and appearance from the Compound as formerly prepared." This difference, it went on to state, was due to the addition of certain new herbs!

In February 1913 the Lydia E. Pinkham Medicine Company shipped in interstate commerce a quantity of Lydia E. Pinkham's Vegetable Com-

pound which the government declared was misbranded. In September 1915 the United States Attorney for the District of Massachusetts, acting on a report by the Secretary of Agriculture, filed what is known as an information against the Lydia E. Pinkham Medicine Company. The government officials charged in substance that the claims made on or in the trade package that Lydia E. Pinkham's Vegetable Compound was effective "as a remedy for prolapsus uteri or falling of the womb, leucorrhea, and inflammation and ulceration of the womb, for curing the diseases of women and for all female ailments and affections, diseases of the bladder and organic affections of the kidneys, and effective as a cure for dysmenorrhea, menorrhagia, displacement of the uterus forward, uterine tumors and diseases of the ovaries, and as a preventive of miscarriage or abortion" were false and fraudulent!

The company made no attempt to justify the fraudulent claims, but neither did it plead guilty. Instead, in October 1916 it entered a plea of *nolo contendere,* which is a legal method of refusing to contest a charge. The court found the company guilty and imposed on this wealthy corporation a fine of $50. The government report on this case was not published until January 1918, nearly five years after the seizure of the shipment. "The mills of the gods grind slowly . . ."

THE present Food and Drugs Act, which is hopelessly inadequate because it does not control fraudulent statements made elsewhere than on or in the trade package, has, in spite of its weakness, brought about many changes on the labels and cartons of "patent medicines." There are few better illustrations of what even a weak law, when honestly enforced, can do to protect the public than is to be found in a study of the label changes of Pinkham's Vegetable Compound. There are reproduced with this article four Pinkham labels of different dates, ranging from the one used prior to the present Food and Drugs Act, which was enacted in 1906, down to the present. There have been even more changes than those shown, but the four labels reproduced are an excellent illustration of what can be done in removing or modifying misleading or fraudulent statements when efficient and honest officials are empowered by the law to institute prosecution for any false and misleading statements that are made.

It will be noted in the oldest label reproduced at the time that fraudulent statements on the trade package were merely immoral instead of illegal and potentially expensive—that Lydia Pinkham's Vegetable Compound was claimed to be "A Sure Cure for Prolapsus Uteri or Falling of the Womb, and All Female Weaknesses," listing a number of interesting, if intimate, conditions. Following the passage of the law, the line on the label reading "A Sure Cure for" was deleted, and the information that the law required, giving the amount of alcohol present (at that time 18 per cent), was declared. The label still implied, however, that the Pinkham preparation was a cure for falling of the womb and many other serious conditions. It was on the basis of these claims that the Food and Drug officials proceeded against the Pinkham concern, and this action brought the verdict to which reference has already been made.

Following this there was another change in the label, in which the stuff was "Recommended for the Treatment of Non-Surgical Cases of Weaknesses and Disorders of the Female Generative Organs, Catarrhal Leucorrhea and Irritation." About this time, also, the alcohol content was changed from 18 to 15 per cent. A little later the statement relative to "Catarrhal Leucorrhea and Irritation" was deleted and yet another new label was issued. Then finally came the label that is being used today, in which it is stated that Lydia E. Pinkham's Vegetable Compound is "Recommended as a Vegetable Tonic in Conditions for Which This Preparation Is Adapted." This statement is about as informative as it would be to say that "For Those Who Like This Sort of Thing, This Is the Sort of Thing That Those People Like."

On May 13, 1935, the bureau of foods and drugs of the department of health of the Commonwealth of Kentucky gave the result of a recent examination of Lydia E. Pinkham's Vegetable Compound. The chemist reported the following figures:

Alcohol	14.18 per cent absolute alcohol by volume
Solids on evaporation	3.5 Gm. per 100 cc.
Ash	0.27 Gm. per 100 cc.
Sucrose	0.75 Gm. per 100 cc.
Invert sugar	0.46 Gm. per 100 cc.
Vegetable extractive	2.02 Gm. per 100 cc.
Salicylic acid	0.25 Gm. per 100 cc.
Chlorides	Small amount
Phosphates Fe, Ca, Mg	Traces
Tansy	Indicated
Lovage	Indicated
Emodine, alkaloids, bromides, iodides	None

On the basis of this analysis the opinion was expressed that the specimen examined appeared "to consist of a decoction of vegetables, drugs, tansy, lovage, etc., containing 14 per cent alcohol and preserved with a small amount of salicylic acid."

AT THE same time the chemist reported the results of an examination of "Lydia E. Pinkham's Tablets." These are described in the Pinkham advertising as "A Uterine Sedative for the Relief and Prevention of Monthly Pains and Associated Disorders." According to the report of the Kentucky chemist: "Sample appears to consist of compressed tablets containing amidopyrine, sodium valerate, magnesium carbonate

and a small amount of vegetable extractive coated with calcium carbonate (chalk) and colored brown with iron oxide." The amount of amidopyrine in each tablet was, according to this report, 1.28 grains. The drug amidopyrine is one that, in the opinion of physicians, has no place in "patent medicines." There is increasing evidence of a relationship between the continued use of amidopyrine and a serious disease of the blood known as granulocytopenia.

Alcohol still seems to be the most potent ingredient in Lydia E. Pinkham's Vegetable Compound. From the nearly 20 per cent that was found by the British chemists in 1912 and the 18 per cent that was declared on the label after the Food and Drugs Act was passed, the alcohol content was reduced a few years later to 15 per cent, the amount that it now contains. The dosage, according to the label, is 1 tablespoonful (½ ounce) every four hours during the day. Assuming that the tired housewife takes her first dose of Lydia Pinkham's when she rises and continues, according to the directions, until she goes to bed, she will get certainly 4 tablespoonfuls or 2 ounces, and probably 5 tablespoonfuls or 2½ ounces, of a liquid containing 15 per cent of alcohol. It is not hard to believe that in women unused to alcohol this amount might so change their outlook on life as to explain the continued popularity of this remedy.

HEALTHGRAMS ✣ from Articles in This Issue

¶Many men have been called by various authors the Father of the Plymouth Colony; but if its paternal parent is a matter of dispute, no one has any doubt as to the physician who presided at its birth and, in spite of many complications, delivered for the world a living and eventually a lusty infant colony.
See page 968

¶The dull eye, scraggly teeth, weak will and feeble health are not signs of too much milk but of too little. *See page 971*

¶Chronic constipation, a condition due to faulty elimination, is one of the commonest ailments of the present age. *See page 990*

¶Some one has remarked that there appear to be fewer crippled children than in former years. This is probably due in part to the fact that the causes of crippling conditions are recognized and corrected early and therefore more effectively; but it is also due in part, I believe, to the fact that the cripple has been taught to adjust himself to his condition and to make a useful place for himself in life. *See page 976*

¶The most important means for prevention of toxic goiter are the prevention and treatment of every simple goiter and active treatment in the early phases or stages of excessive or abnormal thyroid activity before the goiter becomes apparent. *See page 981*

¶Intelligent adults, reading newspapers silently at their ordinary speed, will vary in rate from three to ten words a second. *See page 987*

¶Malaria is spread in but one way. It must alternate between mosquito and man.
See page 1021

¶The modern baby doctor has justly been called the third parent of the child of today.
See page 1022

¶It is well known that anger and fear do things to one's insides. It is not so well understood that worry is virtually chronic fear, and resentment is chronic anger. *See page 993*

¶In the entire United States only a little over 50,000 persons are actually deaf, but 11 per cent of the school children tested are hard of hearing. *See page 1026*

¶There are nearly as many varieties of turkey stuffings as there are families, and the variety used is almost a tradition. *See page 999*

¶The child is excessively stimulated by small amounts of caffeine both by its central and by its diuretic action. *See page 1005*

¶The small intestine, the longest organ in the body, is longer than the combined height of four men. *See page 1009*

¶Taste is about three-fourths smell.
See page 1002

¶During the year 1934 there were 53,000 deaths in the United States from motor vehicle and other public accidents. This is a greater loss in man power in one year than the battle losses of the entire American Army during the World War. *See page 1010*

¶The great advance of general surgery has come since general anesthetics eliminated pain. Just so dentistry has advanced since the advent of nerve block anesthesia rendered it painless.
See page 1016

¶Allergy is the cause of sinus trouble in about half the cases. *See page 996*

¶The Black Death rode into Europe on the back of a flea; but the flea rode in on the back of a rat. The rat and the flea are the cause of bubonic plague, and death is the result.
See page 972

THE CONQUEST OF PAIN

Chapter XI of These Teeth of Mine

By DAVID W. McLEAN

THE FIRST anesthesia dated back to creation: "And the Lord God caused a deep sleep to fall upon Adam, and he slept; and He took one of his ribs, and closed up the flesh instead thereof."

One of the earliest of man's forms of anesthesia was the unconsciousness obtained by thumb pressure on the carotid arteries in the patient's neck to shut off the flow of blood to the brain. The word "carotid" signified the artery of sleep. This method was still in use in the middle of the eighteenth century.

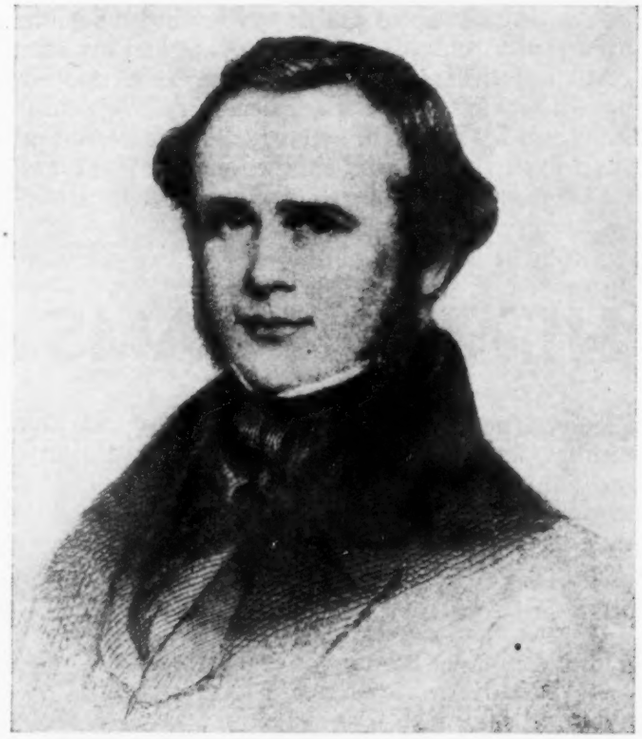
The sleeping potion was another early form. Cesarean operations were performed under its influence in remote times. The Babylonians used mandrake wine 2,000 years before Christ. The "sorrow easing drug" of the Odyssey was some such potion. "Give a stupefying drink to him who loseth his life" enjoins the Talmud.

In the fourteenth century an eminent French surgeon used a method which persisted for several centuries. He made a brew of opium, mandrake and other drugs in water, placed a sponge in the mixture and boiled it all day, letting the water boil out. The sponge was then dried in the sun. When surgical anesthesia was needed the sponge was wet with hot water, and the patient inhaled its fumes. The anesthesia thus induced was not always complete, though the patient often slept for several days and sometimes forever. Many patients preferred the agony of surgery to the hazard of such sleep.

In 1776, Joseph Priestley discovered nitrous oxide gas, which was to loom big in the warfare against pain. But the gas long remained just another chemical. Twenty-two years later, Sir Humphrey Davy performed a series of experiments in which he inhaled nitrous oxide. One day he had a toothache and noticed that when he inhaled the gas his toothache stopped. In 1800 he reported the occurrence and advised that nitrous oxide might be useful to prevent the pain of surgery. The hosts of pain must have trembled in their boots.

About this time an English physician prescribed ether inhalations for the relief of asthma. The patient reported that she became unconscious for a few moments after breathing the fumes. During the same period, Dr. Thompson of Glasgow occasionally amused his students by allowing them to inhale nitrous oxide or ether until they became intoxicated.

The forces of humanity stood on the brink of a sweeping discovery—and stopped there.



BEFORE A CLASS OF STUDENTS AT HARVARD MEDICAL COLLEGE, HORACE WELLS, A DENTIST, GAVE THE FIRST DEMONSTRATION OF THE SURGICAL USE OF GENERAL ANESTHESIA.

The scene shifts to America. March 30, 1842, Dr. Crawford W. Long anesthetized the first patient with ether and removed a small tumor from the neck. He did not, however, publish a report of his work until seven years later.

In 1844, G. Q. Colton, a lecturer on chemistry, came to Hartford, Conn. At the close of a popular lecture, members of the audience were invited to the platform to inhale nitrous oxide, or laughing gas. They enjoyed a brief exhilaration, and the audience enjoyed their antics. One young man fell and, striking a chair, cut his leg. There was hemorrhage but apparently no pain.

Dr. Horace Wells, a dentist, was present. Afterward he questioned the young man, who stated that his first knowledge of having fallen was when he found himself sitting on the floor, his leg bleeding.

THE next day, Dr. Wells inhaled the gas, and a dentist friend extracted a tooth for him. On awakening, Wells exclaimed that he had felt nothing; that a new era in tooth pulling had arrived. Tooth pulling, indeed! A new era had arrived for all surgery.

Soon we find Wells in Boston, exhibiting his discovery before a class of medical students in

Harvard Medical College. He was assisted by another dentist, Dr. William T. G. Morton. The patient, however, was not given enough anesthetic. He screamed, and the students hissed Wells out of the room.

But Morton studied the matter further. Enrolled now as a medical student, he asked advice of one of his professors, Dr. Charles T. Jackson. Jackson advised him to try ether, and Morton tried it on himself. Alone in his room, he opened a vial of ether and inhaled its fumes. As he felt himself becoming unconscious he looked at the clock. Awakening, he looked again, to find that he had slept eight minutes. As soon as he could move his hand he pinched himself, but he did not feel any pain.

Dr. Morton next persuaded Boston's leading surgeon, Dr. J. C. Warren, to let him administer ether for a major operation in the Massachusetts General Hospital.

Wells, Morton and Jackson fought for the honor of discovery. They ruined their lives fighting, and neither Wells nor Morton lived to see the statues which hailed them as the discoverers of anesthesia.

MEANWHILE the news of surgical anesthesia spread across the world. Eminent surgeons tried the new fumes. Inhalers were perfected. Dr. Oliver Wendell Holmes contributed the newly coined words "anesthesia" and "anesthetic." In Glasgow, Sir James Simpson discovered the anesthetic properties of chloroform and introduced it in childbirth.

All these early anesthetics had inherent drawbacks to be overcome. Nitrous oxide soon fell into disrepute. Even Dr. Wells discontinued its use.

The oxygen contained in nitrous oxide is locked up chemically, so the body cells cannot use it; it does not support respiration. If its administration is too long continued the patient will be asphyxiated. When a number of teeth were to be extracted, administration continued until the patient was blue in the face. When he had all but stopped breathing the mask was thrown aside, the forceps were seized, and the operator flew at his task. In about one minute the patient would awaken.

This brevity of nitrous oxide anesthesia was not overcome until 1863 when Dr. Edmund Andrews of Chicago added a small percentage of oxygen to support respiration and life. Dogs kept under the influence of the new combination for two days hopped up when the mask was withdrawn and sniffed about for something to eat. Combined with oxygen, nitrous oxide still remains, in competent hands, the safest and pleasantest of anesthetics.

Abraham Lincoln is said to have called on a dentist in Washington, D. C., for the extraction of a tooth. When the doctor was ready, Lincoln asked him to wait a moment. Removing a small bottle from his pocket he took a number of inhalations of chloroform. Replacing the vial in his pocket he leaned his head back against the headrest and said, "All right, Doctor, go ahead." The tooth was removed with little pain, although the patient was entirely conscious. The condition is now called analgesia, but it was first used by Sir James Simpson for childbirth.

For twenty-five years after Simpson introduced chloroform analgesia, Dr. A. C. Hewitt of Chicago used it constantly, and in 1895 he published his procedure to the dental profession.

DR. W. T. G. MORTON ADMINISTERS THE ETHER WHILE DR. J. C. WARREN PERFORMS THE FIRST MAJOR OPERATION UNDER ANESTHESIA. (PHOTO FROM HARZOG: "THE TRIUMPH OF MEDICINE," COURTESY DOUBLEDAY, DORAN & CO.)

Soon after, dentists began using analgesia produced by means of nitrous oxide and oxygen. By increasing the percentage of oxygen and adding air to the mixture they held the patient suspended on the brink of sleep but still conscious. The brain was awake, but the sensory nerves of the body, including those in the teeth, were asleep. Tooth cavities could be drilled with little or no pain. The gas was administered through a small inhaler fastened over the nose; there was no interference with the mouth.

Two nurses were required when a dentist operated under nitrous oxide analgesia. There was a great deal for the operator to watch. The nerve strain on the dentist was great.

Few dentists still use the cumbersome nitrous oxide analgesia, for the warfare against pain developed along another front.

It had long been known that some South American natives, when on the march, chewed coca leaves to relieve hunger and fatigue.

In 1860, Nieman of Germany isolated cocaine from coca leaves and found that the new substance, applied to the tongue, made it numb. This opening shot, promising so much, was followed by twenty-four years of silence. The war against pain moved slowly.

In 1884, Carl Koller, an eye specialist in Vienna, dropped a cocaine solution into a patient's eye and performed an operation without pain. Shortly afterward, Dr. William S. Halsted, professor of surgery in Johns Hopkins Medical College, discovered that cocaine would produce local anesthesia when injected under the skin. Still experimenting, Dr. Halsted soon discovered that a nerve could be "blocked" by an injection of cocaine somewhere along its route between the field of operation and the brain. If cocaine was injected at the knee, the patient's toe could be amputated without pain.

But cocaine was a treacherous drug to use. An occasional patient had so strong an idiosyncrasy for it that if a dentist injected into the gum one drop of a solution containing only 0.7 per cent of the drug the patient collapsed. It might take several hours of the most nerve-racking strain and effort on the dentist's part to see that patient starting for home at last under his own power.

COCAINE more and more displaced nitrous oxide as the anesthetic for tooth extraction; but there still remained the pain of drilling out cavities in teeth; not dangerous pain, but exquisite, like an electric shock, so overpoweringly unexpected even when you expected it.

The operation of drilling out a tooth cavity cannot be hurried. The drill cuts slowly, and the work is minute. There was a crying need for anesthesia.

So various expedients to eliminate the pain of drilling were tried. Several were tried on me. One I recall distinctly. An eminent dentist

DR. W. S. HALSTED DISCOVERED THAT A NERVE COULD BE "BLOCKED" BY AN INJECTION OF COCAINE SOMEWHERE ALONG ITS ROUTE BETWEEN THE OPERATIVE FIELD AND THE BRAIN.

announced the successful use of a desensitizing paste which he sealed in the cavity for two or three days in advance to render drilling painless. It liberated a gas which cauterized the fibrils extending through the dentin to the pulp of the tooth.

"That sounds promising," I remarked to a dentist friend with whom I had an appointment for the filling of one of my upper molars. "Let's try this man's formula on my tooth."

With the paste sealed in my tooth I was happy to think I lived in an age when I could enjoy the benefits of modern science. But in a few hours I was back at the dentist's office, with seventeen devils of pain encamped in that tooth.

The "desensitizing" paste was removed, and a treatment was sealed in the cavity to stop the pain; but the pain went on. Next afternoon I canceled some of my appointments and again called on the dentist. The soothing treatment of yesterday was replaced with another. Still the tooth refused to be soothed.

After walking the floor most of the third night, I went down to my own office just before daybreak. I set a mirror on the table in front of the dental chair and placed the engine at hand with a new, sharp drill in it. Seating myself in the chair and running the engine at top speed, I plunged the drill directly into that aching nerve. As quickly as possible I placed medicine on the nerve itself. In the relief which promptly followed I could sympathize with the crazy man

who liked to tap himself on the head with a hammer because it felt so good when he stopped. I lost that tooth.

Shortly after this desensitizing experience came the high powered cocaine syringe. I promptly had it tried on another of my teeth. I was determined to learn some way to drill teeth without hurting, and this time the experiment was successful.

The rubber dam was applied, and a pinhole was drilled in the dentin of the tooth. A powerful cocaine solution was placed in the syringe, which had a strong needle, a small barrel and big powerful handles to operate the plunger. The needle was pressed tightly into the little hole in the dentin, and the cocaine was forced in with 300 pounds of pressure behind it. It hurt only for a moment. The process was a great success, when it worked. But often it failed to work; then there was waste of time, pain for the patient and humiliation for the dentist.

Another method of that period consisted of drilling a small hole in the bone over the tooth. The hypodermic needle was inserted, and cocaine was injected into the bone. Dentists know now that the hole in the bone was unnecessary. If the cocaine had been injected under the gum the blood circulation would have carried it through the bone to reach the nerves that entered the tooth. That is modern infiltration anesthesia.

Procaine hydrochloride, sometimes known as novocain, a synthetic preparation, was in use when I entered college thirty years ago. While similar in action to cocaine, procaine hydrochloride was vastly safer; but it was slower in taking effect, and the anesthesia it produced was brief. It was little used in those days, but later epinephrine was added to the procaine solution to contract the blood vessels, temporarily reducing the blood circulation in the area injected. The procaine then was not carried away into the blood system so quickly; as long as procaine remains in contact with the local nerves they are paralyzed and cannot transmit any messages of pain. The combination of procaine and epinephrine soon began to displace cocaine in dental practice.

Epinephrine, by its pinching down action on the circulation, stimulates the heart. It is the cause of the sensations occasionally experienced by the patient during the first moment or two after injection. The percentage of epinephrine in the procaine solution varies at the discretion of the dentist; the duration of anesthesia depends on the amount of epinephrine.

I recall a patient with serious heart trouble who required the removal of three teeth. I decided to operate at her home, with her physician in attendance. Her husband was a self invited attendant. I used a procaine solution without epinephrine and used it freely. The only casualty occurred after the teeth were out. The patient's husband fainted.

The nerve block anesthesia, discovered by Dr. Halsted of Johns Hopkins, was adapted to the field of dentistry by Dr. Guido Fischer of Germany. The technic standardized by Fischer demands first of all an intimate knowledge of the routes by which the nerves reach the teeth, gums and jaws. At some point along the nerve trunk the dentist deposits an injection of procaine, which paralyzes the nerve cells, each with a long threadlike arm extending in each direction. The right arm of one nerve cell locks fingers with the left arm of its neighbor. Imagine a long line of them extending from a tooth to the brain. The first cell, in the tooth pulp, receives the message from the fibrils of the dentin, which the dentist's drill is cutting. This nerve cell pinches the fingers of its neighbor beyond. The impulse passes from cell to cell, until it reaches the brain, to register as pain.

Procaine nerve block puts a few cells to sleep, somewhere between the tooth and the brain. No messages can pass that point. A point is selected back on the main trunk line of a nerve controlling several teeth. All those teeth may then be drilled without pain.

The anesthesia lasts two hours or more, so the dentist drills two or three teeth after giving one injection of procaine; he places temporary fillings in the cavities and introduces the permanent fillings at leisure.

Procaine is blamed for many things, from the inflammations caused by unsterile instruments to general illness, of which it is equally guiltless.

One patient, whose mouth was in process of reconstruction, had been having quite a few cavities drilled out. She became indisposed for a few days. A friend, who happened to be a nurse, called on her and said: "I know why you are ill. It is the result of all that novocain the dentist has been giving you."

The patient was greatly amused, for so strong was her antipathy to hypodermic injections that not once had she received even a drop of procaine.

OCCASIONALLY one hears of a patient who complains that his lower lip and chin were permanently paralyzed by procaine; or perhaps they remained numb for months. That condition is caused by surgical injury and not by the anesthetic; it often follows the removal of a tooth whose root unavoidably scraped the nerve and tore it. The same result would have followed that particular operation if no anesthetic had been used.

The procaine-epinephrine solution, properly used, is the ideal anesthetic both for tooth extraction and for the drilling necessary to prepare decayed teeth for filling.

To nervous patients a sedative tablet is given half an hour before the dental appointment, to

dull the entire nervous system. A surface application numbs the gum prior to the injection of procaine. Procaine nerve block does the rest.

There are patients, however, to whom procaine is as so much water. For them analgesia is still desirable while drilling teeth. For tooth extraction they require general anesthesia.

It is my conviction that even a brief general anesthesia for tooth extraction should be given only in a place fully equipped for any and every emergency, and with two experts in attendance, one to perform the operation and the other to care for "the anesthetic end of the patient."

The great advance of general surgery has come since general anesthetics eliminated pain. One cannot perfect the niceties of any operation with the patient screaming and jerking or in collapse.

Just so dentistry has advanced since the advent of nerve block anesthesia rendered it painless.

The patient relaxes; so does the dentist. More thorough and more delicate work can be done and can be done more rapidly.

The devils of pain and fear are on the run. And the warfare against them still goes relentlessly on.

Story tellers inform us that in the ultimate analysis there are only three plots for stories. That means that there are three basic motives in life. They are the preservation of life, the preservation of the race and the preservation of "face"—in other words, pride. There is earnest discussion as to which takes precedence, and the argument lies between the preservation of life against the unfriendly environment, which is ever crowding in on us, and the preservation of pride. Men will do much to preserve their lives, but frequently they will give their lives to save their honor, their pride.

Strangely, these two foremost motives in life are the motives back of dental treatment! The preservation of the teeth, in the face of constant encroachments of unfriendly environment, has for its aim the preservation of health and thus of life and, almost literally, the preservation of "face."

In the warfare for the preservation of dental health there comes to each of us an occasional setback. Despite all planning and effort, caries or pyorrhea may for the moment gain the upper hand; some tooth goes down in defeat.

The life and function of the dental community of which the lost tooth was a part, that of the patient, must go on. The patient and his dentist retreat to a new strategic position—behind a bridge.

[NOTE.—In the December issue, Dr. McLean's topic will be "Crossing One's Bridges."]

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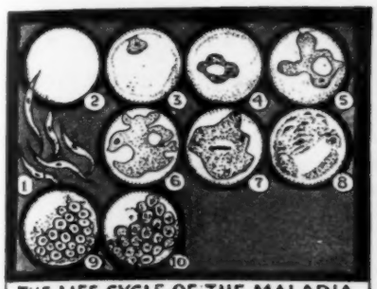
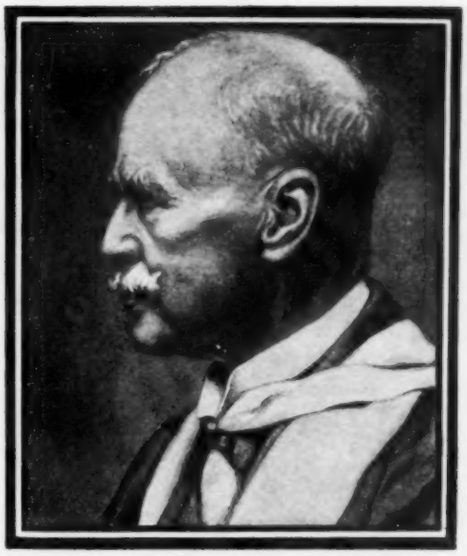


THE LIFE CYCLE OF THE MALARIA PARASITE. THE NUMBERS SHOW THE SUCCESSIVE STAGES OCCURRING IN THE HUMAN RED BLOOD CELLS. THE MALARIA PARASITES ARE SPINDLE-SHAPED (1). THEY SWIM BY SPIRAL WRIGGLINGS, STICK THEIR POINTED ENDS INTO A RED CELL AND WORK THEMSELVES INSIDE IN ABOUT FORTY MINUTES (2).

CHARACTERISTIC POSTURE OF ADULT ANOPHELES MOSQUITO AT REST. THE BODY IS NORMALLY AT AN ANGLE OF FROM 25° TO 55° WITH THE SURFACE (1).

ANOPHELES MOSQUITO IN THE ACT OF SUCKING HUMAN BLOOD (2).

ADOLPH BEILIN



STOMACH OF FEMALE ANOPHELES MOSQUITO WITH NUMEROUS PLASMODIAL CYSTS. THE CYSTS CONTAIN MANY HUNDREDS OF MALARIA PARASITES.

THE SUCCESSIVE CHANGES OF THE MALARIA PARASITES IN THE STOMACH OF THE ANOPHELES MOSQUITO.

FEMALE ANOPHELES MOSQUITO, CARRIER OF THE MALARIA GERM.

SIR RONALD ROSS

(1857-1932)

A Great Medical Idealist and World Benefactor

By ADOLPH BEILIN

SEEN IN historical perspective, the extraordinary achievement of Sir Ronald Ross assumes incalculable proportions. Despite his meager laboratory facilities and the persistent opposition to his work by "stagnant officialdom and stupid bureaucracy," the far-reaching benefits of his discovery of the complicated rôle of the mosquito in the spread of malaria will rank as one of the greatest single accomplishments in all the realms of medicine.

Ross was born at Almora, India, May 13, 1857. After the completion of his medical education at St. Bartholomew's Hospital in London, he went to sea as a surgeon for the Anchor Line. In 1881 he entered the Indian medical service. Ten years later he began the researches on malaria that culminated in his rise from comparative obscurity to the pinnacle of fame. But medical research did not claim all his interest. Indeed, he was both a practical and a theoretical idealist, and he was equally proficient as a poet, musician, litterateur and mathematician.

It is impossible to set forth here the whole astonishing story of Ross' discovery. In its barest outline it may be stated somewhat as follows: There are three distinct species of malarial parasites, each differing in the time relations of their life cycle, part of which is spent in human blood and part in the stomach of a mosquito. The three species of parasites are Plasmodium vivax, Plasmodium malariae and Plasmodium falciparum. The parasite first mentioned takes two days to grow in the red cells; the second species requires three days to grow, and the last species grows irregularly. Each species of parasite produces a definite variation in the duration and recurrence of fever and chills. The parasites are carried by Anopheles mosquitoes. Only the female Anopheles sucks blood, and it alone transmits the disease.

Ross proved that malaria cannot be transmitted directly from man to man. The disease is spread in but one way. It must alternate between mosquito and man. The mosquito bites a malarial person and sucks up some of the parasites, which after ten to fourteen days become infectious again and ripe for injection into the next victim.

Ross experimented on himself, contracted malaria, lived through the disease but never fully regained his health. Numerous honors and awards were bestowed on him from all over the world, and he was twice recipient of the Nobel prize. He died at the Ross Institute, London, Sept. 17, 1932.

MODERN DOCTORS for MODERN BABIES

By
Beulah France

IT IS IMPOSSIBLE FOR THE BABY TO TELL AN ADULT HOW HE FEELS, AND HIS ATTEMPTS TO DO SO ARE OFTEN MISUNDERSTOOD BY THE PARENTS; BUT THE DOCTOR INTERPRETS CORRECTLY. THROUGH THE COOPERATION OF THE MOTHER WHO FREQUENTLY TAKES HER BABY TO THE DOCTOR'S OFFICE TO BE WEIGHED, MEASURED, EXAMINED AND SUBJECTED TO THE NECESSARY TESTS, MANY CONDITIONS WHICH FORMERLY RESULTED IN ILLNESS AND OFTEN IN DEATH ARE CORRECTED IN TIME OR AVERTED.

IF A GROUP of parents today were asked, "What is the greatest advantage your children have over those of former generations?" how would the majority reply? Probably they would give an answer such as this: "The greatest advantage is the increased likelihood of living to grow up and enjoy a healthy, happy womanhood and manhood."

Would such an answer be justifiable? On what facts would it rest? Surely parents of former generations had many children. Did not most of them live to grow up? Statistics show that they did not. The fascinating story of the development of interest in the welfare of little children reveals that an appallingly large number of babies, born in centuries preceding ours, succumbed to the perils of early infancy. The word "perils" is used here advisedly. Were there not those dark ages when the question of family limitation was settled by almost wholesale infanticide? Was it not considered quite a social step forward when babies were permitted to live if they happened to be blessed with sturdy constitutions? That such a plan means only the survival of the fittest was accepted without protest. This world was no place for weaklings; the younger they died, the better for all concerned.

No one will ever know how many babies did die. For throughout all these periods of time, few, if any, worthwhile attempts were made to keep vital statistics. During the reign of Henry VIII, certain births and deaths were listed, but there are no dependable records to be found dating back farther than the latter half of the nineteenth century.

NEVERTHELESS, while available figures pertaining to infant mortality are lacking, one does catch occasional glimpses through the pages of history which reveal, in part at least, what a small percentage of live-born babies reached maturity. There is, for example, Queen Anne of England. Surely if any children were given every possible chance for life, those of her royal family must have been favored. Yet his-

torical documents present the following casual record: "Queen Anne died in the year of Our Lord 1714 after having borne her husband eighteen or nineteen children, none of whom outlived infancy save one who reached the age of ten." Even the exact number of children born to the queen was apparently thought unimportant.

In tracing the child welfare movement it becomes evident that few concerted efforts were made to save the lives of babies previous to the eighteenth century. There were, to be sure, those who had shown interest in children during the preceding years. Hippocrates before the birth of Christ had dared to announce his belief that babies were not born merely that they might promptly die. Occasionally other physicians became imbued with the same idea, but when they put forth efforts to lower the infant death rate they all too often had to struggle alone against odds and at last gave up in despair, feeling that little had been accomplished.

This was also true of Dr. George Armstrong of England whom Grace Abbott calls the first pediatrician. He established the earliest dispensary on record for London's poor children, treating 35,000 patients there during the short time that his clinic was open and demonstrating beyond question the fact that babies' lives can be saved. What happened to Dr. Armstrong? No one knows exactly. History states that his funds gave out; that the reigning queen of England turned a deaf ear to his pleas for financial aid; that his clinic was closed, and that he died in poverty and seclusion in an unknown place on an unrecorded date.

But the work which he had started was not dead. His works lived after him. Only a few years later other doctors with vision took up the task which he had been obliged to lay down. New clinics were opened, and hospitals were prepared for children. The books which he had written were studied. To this day those quaint little leather bound volumes with their pages browned with age are referred to by students of child care and infant welfare in many lands.

THE seeds, which he and other martyrs who were sacrificed for the worthy cause had sown, took root and grew, until toward the close of the seventeenth century a widespread wave of interest in infant welfare began to be evidenced throughout the civilized world. People seemed to be awakening to the fact that in every generation the future depends on the children of today. They came to realize that many of the world's brightest geniuses would never have reached adult life if the law of the survival of the fittest had been depended on. As a natural outgrowth of this changed point of view, records of births and deaths came to be kept carefully, until today vital statistics play a most significant rôle as the index of a country's advancement in that most important matter, the saving of the lives of its people.

A few of these figures hold special significance for parents. In New York City in the year 1880, 280 of every 1,000 live-born babies died before they were 1 year of age. It is estimated that in 1935, only 50 infants of every 1,000 live born will fail to reach their first birthday. What does this mean?

It means that from every group of 1,000 babies born this year in this great American metropolis, 230 more will remain alive than would have survived in the days when their grandparents were children. It means that in 1935 approximately 23,000 new lives will be saved in New York City alone that would have been lost if the death rates of a half century ago still existed. Similar striking reductions in infant mortality are shown by the vital statistics of the entire United States registration area and of other countries as well.

WHAT has happened to make modern childhood so much safer? There are of course many contributing factors, all of which are outgrowths of the movement that I have outlined. Outstanding among these, however, is the new attitude toward the importance of pediatrics, manifested by the baby doctor who devotes his life to the welfare of children and who gives all his time and his thought to the building of healthier, happier boys and girls who will be tomorrow's men and women. He has indeed been justly called "the third parent of the child of today." He is qualified by interest and special training or experience to make health fairly certain for babies and to keep the well babies well. He is prepared to supervise the entire health program of the infant placed under his care. He is able to guide the parents in a way which will not be resented, and he irons out conflicts that may arise between fathers and mothers on questions of discipline. He is in position to advise parents about problems of habit and conduct that so often interfere with normal development.

Pediatrics is still a fairly new field, and not all pediatricians have attained the same high standards. Parents should select with great care the physician who will be the third parent. He must be old enough to have acquired a good background but young enough to be alert. He must keep abreast of all the new methods of health supervision and preventive pediatrics that are constantly being developed. He must be patient and long suffering with parents, and above all, he must have a genuine fondness for little children.

Having found such a physician, a father and mother may be assured of receiving his cooperation, provided they give him theirs. If parents place full confidence in the doctor they

IF A MOTHER IS NOT TO SEE THE BABY'S DOCTOR FOR A NUMBER OF DAYS OR A WEEK AND SHE WISHES ADVICE, IT WILL BE WELL TO TELEPHONE HIM, STATING THE PROBLEM CLEARLY. HOWEVER, THE TELEPHONE PRIVILEGE SHOULD NOT BE ABUSED BY FOOLISH, FREQUENT AND NEEDLESS CALLS, FOR IF A BUSY DOCTOR IS INTERRUPTED FREQUENTLY BY LENGTHY TELEPHONE CALLS, IT IS OFTEN EXCEEDINGLY ANNOYING TO HIM AND TO HIS OFFICE PATIENTS.

will not be swayed by expressed opinions of well meaning neighbors and friends, nor will they depend on baby books for advice. They will realize that since each infant is a distinct individual, of whom there are no two exactly alike, the doctor is the best and the only source to whom they may safely turn for guidance.

They will surely receive it from him for the new kind of baby doctor comes to know the mother, the father and the home life of the child, and thus it is possible for him to take heredity and environment into consideration when arriving at certain conclusions. He is a student of psychology as well as of medicine. Since he has the baby's mental and physical health in mind at all times, his judgment can safely be relied on and should be accepted without question.

IT SHOULD not be accepted literally without question, however. If a decision made by the baby's doctor is not fully understood by a parent, an explanation may and should be requested. Since parent education is a part of the accepted duty of the modern baby's doctor he is willing and glad to give information which will clarify any point concerning the baby. Mothers should understand each step that is taken; they should know why a certain thing is best for the baby. Such knowledge will not only bring about closer cooperation between the doctor and the parents but will make possible the intelligent refutation of arguments that may be advanced by outsiders against the physician's opinions.

After understanding and accepting the physician's decisions, the next step in cooperation is the careful following of his directions. When the mother does not carry out the doctor's instructions, not only is it a waste of time, effort and money to have him prescribe for the child, but it is most unfair to the physician as well. Suppose, for instance, it is a question of infant feeding: Minute details are given as to how the baby is to be fed, but when the parents find that the child objects to the food that is offered, they sometimes humor the little one by changing the diet to suit the taste of the baby. He fails to gain and to grow, and he may become pale and sickly.

PERHAPS a child is sick in bed. The doctor comes and leaves certain kinds of medicine. The baby does not like to take them; so they are given irregularly, and his health fails to improve. In such instances, who is blamed? I do not mean, who is to blame; that much we know. The doctor, the innocent party, bears the brunt of the burden, perhaps all unknowingly. "How so?" you may ask. "He certainly is doing his part."

He certainly is, but the parents are not cooperating. They are not doing their part although they are loath to admit it. The friends and the neighbors see that the child is not progressing. They know, or if they do not they ask, the name of the doctor. And what naturally happens? These relatives, friends and others who hear about the case make a mental reservation that definitely and finally places in their minds a black mark against this special physician. This happens all too often. It is a lack of cooperation which is unfair to all concerned, including the child or baby.

In reviewing the marked reduction in infant mortality it has been pointed out that it was largely made possible by the new attitude toward pediatrics, by improved knowledge of children's diseases and by modern methods of

treatment. Perhaps it would be more true to say that the lives of these infants have been saved by the concurrent efforts of modern physicians and modern parents, for even the finest physician can do little alone.

What causes of death have been most markedly reduced? Of the several groups, two stand out as having taken high yearly tolls during the first year of life: contagious diseases and gastro-intestinal infections, such as diarrhea. In New York City alone contagious diseases have been reduced 82 per cent during the past half century. This has been accomplished largely through cooperation.

A vast army of doctors and scientists, constantly at work in laboratories, hospitals and medical schools throughout the world, are searching for and finding the cause, cure and means of prevention of various types of diseases. The results of their researches are passed on to the private physician. New developments in preventive pediatrics are eagerly accepted by the keen, alert baby doctor, who in turn offers to safeguard the lives of children under his care. The parents' cooperation is all that is then needed.

But is this invariably given? No, all too often it is not. Smallpox was once an accepted scourge of the earth. Now it is much less prevalent. Why is this true? Because of cooperation. A scientist discovered how to bring about immunity from the disease. He gave his discovery to the medical profession as a whole; and after many hard struggles, the individual physicians won the cooperation of parents who allowed their children to be vaccinated. It is only because of this continued cooperation that smallpox does not still stalk the earth unchecked. Let the doctors refuse to give this protection or let parents refuse to have their infants protected, and in a few years the death rate from smallpox would again be appalling.

The same story is now being written about deadly diphtheria. Time was when the toll taken by this dreadful disease was shockingly high. Fifty years ago, half of all the babies in New York City who contracted diphtheria died. Last year only 103 of 1,593 infants with diphtheria died. This meant the saving of about 700 lives for if the 50 per cent rate had still applied, almost 800 victims instead of 103 would have succumbed. Why was it possible to save so many lives? Because the new kind of baby doctor knows how to counteract the disease if he is called in time, provided the parents cooperate by permitting him to do what he can.

This, however, is forced cooperation. The mother and father of a child with diphtheria know that death may be imminent for their baby. They eagerly welcome any measures which may circumvent it. But, if the right kind of cooperation had existed before, the baby would never have been stricken. One or two injections of toxoid in the little one's arm at about the sixth month of life, followed by a Schick test later, would have assured that child of immunity. When parents and doctors cooperate as they should, diphtheria will become a rare disease. Every death from this preventable disease may well be considered as the direct result of failure to protect the infant, some one's failure to cooperate.

Deaths from diarrheal conditions in New York City have been reduced 73 per cent during the last fifty years. Investigating, doctors found that the causes for this trouble were many; leading among them seemed to be improper diet for infants, impure milk and unsanitary conditions. What has brought about the changes which have saved so many lives? Again, chiefly, it is cooperation.

Mothers learned the value of breast milk for babies and grew increasingly willing to make whatever sacrifices might be necessary in order to nurse their infants. They have been shown the need for child health supervision by one qualified to undertake this responsibility. The modern doctor points out to parents the obvious fact that, since an infant has no language but a cry, the doctor must see the child often in order to judge his progress. It is impossible for a baby to tell an adult how he feels, and his attempts to do so are often misunderstood by the parents; but the doctor interprets correctly. Through the cooperation of the mother who frequently takes her baby to the doctor's office so that he may be weighed, measured, examined and subjected to the necessary tests, many conditions which formerly resulted in illness and often in death are corrected in time or averted.

The doctor is counsel for the nursing mother. He explains to her the close relationship between mental and physical conditions and their effect on the little baby who takes her breast milk. The artificially fed infant is kept under the closest supervision, often being seen once every week, since the doctor realizes that diarrheal conditions may quickly develop if the formula given is not right.

In all likelihood the new kind of baby doctor keeps an accurate record of size, condition and development of each child under his care. He charts the different types of protection that are given against disease, and he notes the baby's progress month by month. The physician of the old type did not do this. Modern mothers may be told by their parents, "All that is merely nonsense; we raised you without so much fuss and bother." But the wise modern mother does not let anything or any one interrupt her continuous cooperation with the physician to whom she has entrusted the health of her baby.

If a question arises concerning the infant's welfare, about which *(Continued on page 1054)*

"Johnny, Are You DEAF?"

By ROSAMOND LEHMAN

"JOHNNY, are you *deaf?* Put down that book and get washed for dinner!" How many exasperated mothers have called their youngsters in just this manner? Are you *deaf?* No, of course not. Johnny hears well enough if the summons is to baseball or a smooth dish of ice cream. But does Johnny hear well? Is his inattention due to indifference or to a more tragic cause? Perhaps Uncle Sam can answer that question better than Johnny's parents, for he has been sleuthing around "on his own hook."

It all began many years ago, in 1910, to be exact, when Edward Nitchie and a group of his students conceived the idea of developing social work for the hard of hearing. They were convinced that this type of work should be organized and operated by the sufferers themselves because no person of normal hearing could understand so well the emotional reaction to this impairment as could they who had experienced the rebuffs suffered by a handicapped people in an unhandicapped world. They organized a society providing free and part scholarships in lip-reading, and the group adopted the name, New York League for the Hard of Hearing, Inc. As interest in the organization grew, similar groups formed in other major cities, and after the World War the leagues were united into a national organization, the American Federation of Organizations for the Hard of Hearing, recently renamed American Society for the Hard of Hearing.

Until this period, Uncle Sam had been smiling indulgently from the sidelines. But in January 1934, searching about for projects that would give employment to white collar people on relief rolls, the grand old man decided to test the hearing of all elementary and junior high school children in New York City. A plan was submitted to the Civil Works Department by the Department of Education, and the aid of the league was enlisted. Early in 1934, Civil Works Project 177 got under way.

As far as the school children were concerned it was all a merry game. Class routine was broken by a man announcing that the youngsters were to play "telephone." Chattering curiously, they filed into the assembly room and stared at the peculiar brown box on the platform. It seemed to be a cross between a radio and a phonograph. Wires dangling from the box extended to the chairs on which the pupils sat. Each student was handed an earphone, a pencil and a piece of paper.

"Now," explained the pleasant man standing beside the machine, "we are going to start the game. You will hold the earphone to your right ear and listen closely. A voice coming from this record," he pointed to the box, "will announce a set of numbers to you, dividing them into groups. After each group the voice will pause long enough for you to write those numbers on a piece of paper. Later we shall change the phone to the other ear. Let's see who can understand the most numbers."

The children, entranced, listened eagerly. Later the papers were collected and examined. Those children whose hearing showed a loss of less than 9 sound units were screened out as persons with normal hearing. By the use of this 4A audiometer as many as forty children can be tested simultaneously. Then followed the more accurate testing for those whose hearing was below normal. Sitting before the finely adjusted 2A audiometer each child with subnormal hearing was examined individually. He listened to sounds in the different tone ranges while the operator varied the intensity and recorded at what point the sound failed to cross the threshold of the child's hearing. Then a history of the child was obtained to uncover any record of previous trouble in the ears. A report was sent to the parents recommending an otologic examination and ear appliances if necessary.

During the first stage of this project, Uncle Sam stood by, smiling paternally; but the smile faded as he scanned the observations of the league. Of the 606,549 school children tested, 68,097 were discovered to be hard of hearing and 47,280 more were listed as having potential cases; that is, having previously suffered inflammation and disease of the ear, they were apt to develop hearing impairment in later years. What could be done? Hitherto lip-reading had been confined to the leagues and a few scattering sections here and there. The government supplied the funds, and 280 teachers were instructed in the teaching of lip-reading and in the use of audiometers.

JOHNNY, are you *deaf?* No, Johnny probably isn't deaf. In the entire United States only a little over 50,000 persons are actually deaf, but 11 per cent of the school children tested are hard of hearing! And in many of the cases the affliction will be progressive.

Do these 11 per cent or their families realize their handicap? In the *New York State Medical*

Journal (April 1935) Dr. Edmund Prince Fowler writes:

Many persons with slight hearing losses do not realize they are deafened until accurately tested and their friends may not realize their deafness, especially if only one ear is subnormal. Even severe deafness may be present without realization by the subject or his comrades. In one school the author detected four children totally deaf in one ear, all of whom denied any deafness. All this shows the necessity of scientifically testing school children before they begin their schooling and at regular yearly intervals thereafter.

Dr. Fowler continues to point out that while severe hearing impairment in both ears commands attention and impels the parents to seek medical advice, moderate cases of deficient hearing often escape notice, and the child is neglected, although often in such cases the youngster can be benefited and progressive deafness can be forestalled by proper treatment.

When in order to hear a moderately loud sound, it is necessary to get nearer than is usual, deafness should be suspected. But the ordinary spoken voice and many teachers' voices are so loud that it requires on the average, a loss of thirty to forty sound units before much inconvenience is experienced. As a matter of fact, if a classroom is noisy and the teacher tends to speak very loudly, deafened pupils may be benefited by the noise, first because of the increased loudness of the teacher's voice and second, because the disturbing sounds are less noticeable to the deafened than to the normally hearing pupils.

Experiments have shown that when the child's loss of hearing amounts to 30 sound units, in order to hear as clearly as a normal pupil in the rear of a 30 foot classroom the child who is hard of hearing must be within 3 or 4 feet of the teacher. Even at such a short distance those in the back seat will have the advantage over him because as the teacher moves back and forth the speaking distance will be changed. The change in the teacher's position will not inconvenience the pupils with normal hearing because the volume of sound varies little unless the speaker is within 4 feet of the listener. But it is imperative for the hard of hearing that the speaker's distance be maintained at approximately 4 feet in order that his words shall not fade into mere unintelligible sounds.

If the child's hearing is reduced by another 10 units, in the same classroom he must not be more than 2 feet from the teacher to hear as well as the unhandicapped children in the back seats. Of course, this child, sitting further back, can hear something; but if he misses words, letters or sentences the meaning is often obscure, and the pupil suffers humiliation and ridicule from his classmates and is considered stupid and inattentive by his teacher.

To prevent children from being unjustly stigmatized and to enable them to mix unself-consciously among their normal companions it is necessary first to discover the defect. After the group audiometer has picked out those with subnormal hearing and these children have been

Ewing Galloway

AS FAR AS THE SCHOOL CHILDREN WERE CONCERNED IT WAS ALL A MERRY GAME. ENTRANCED, THEY LISTENED EAGERLY.

retested by the 2A machine and examined by an otologist they should be given seats near the front of the classroom and the teacher should be careful to enunciate her words clearly, allowing the children to watch her lips whenever she speaks. A child who is moderately hard of hearing should never be sent to a special school for the hard of hearing. Only by continuing in a normal school and by being prepared to carry on among unhandicapped persons can he be expected to develop normally and adjust himself to the world.

One of the most important phases of rehabilitation for the child who is hard of hearing is lip-reading. The rock that wrecks the child's life is not his hearing handicap but the neglect with which he is treated. Branded as stupid because he cannot hear what people are asking, unable to express himself because of his limited vocabulary, he is shunted aside by children his own age because he does not "catch on." These circumstances result in that morbid sensitiveness and suspiciousness which characterize the hard of hearing.

I VISITED a lip-reading class held for children in a public school in New York City. Here I was placed in the position of the child with impaired hearing in a normal class, a child whose handicap has been neglected. For the lesson was being conducted soundlessly while I looked on in amazement.

"Obey whatever orders I give you," said the teacher, smiling at the row of attentive children.

I leaned back with a sigh of relief. Here at last was something I could understand. The teacher continued to talk, but I was lost again. All her instructions were given soundlessly. She moved her mouth. The children rose. Nodding approvingly, she twisted her lips again. The youngsters pretended they were hurling balls. On each eager face was spread a grin of pleasure at her approval. Then they sat back and "listened" to a story. I, feeling quite sheepish, understood none of it. When the class was over, I spoke to the instructor. She informed me that the time allotted to these children was taken from some other class, such as physical culture or music, and that the lip-reading class was conducted in conjunction with the school curriculum.

"Lip-reading is not only eye training but mind training," she explained. "The child becomes more alert through eye training and learns to concentrate. Also, by being enabled to read words from people's lips, he is relieved from excess nerve strain, and the way is thus paved to a higher level of general health."

Children enjoy lip-reading as a new game, and in the admiring envy of their schoolmates their battered self confidence is increased immeasurably. In many cases of impaired hearing the malady is progressive. It is important that the child learn lip-reading while he still retains a good portion of his hearing, that the adult may not be left stranded on the arid desert of economic impotence and social isolation. Lip-reading is "partial insurance against possible increased deafness."

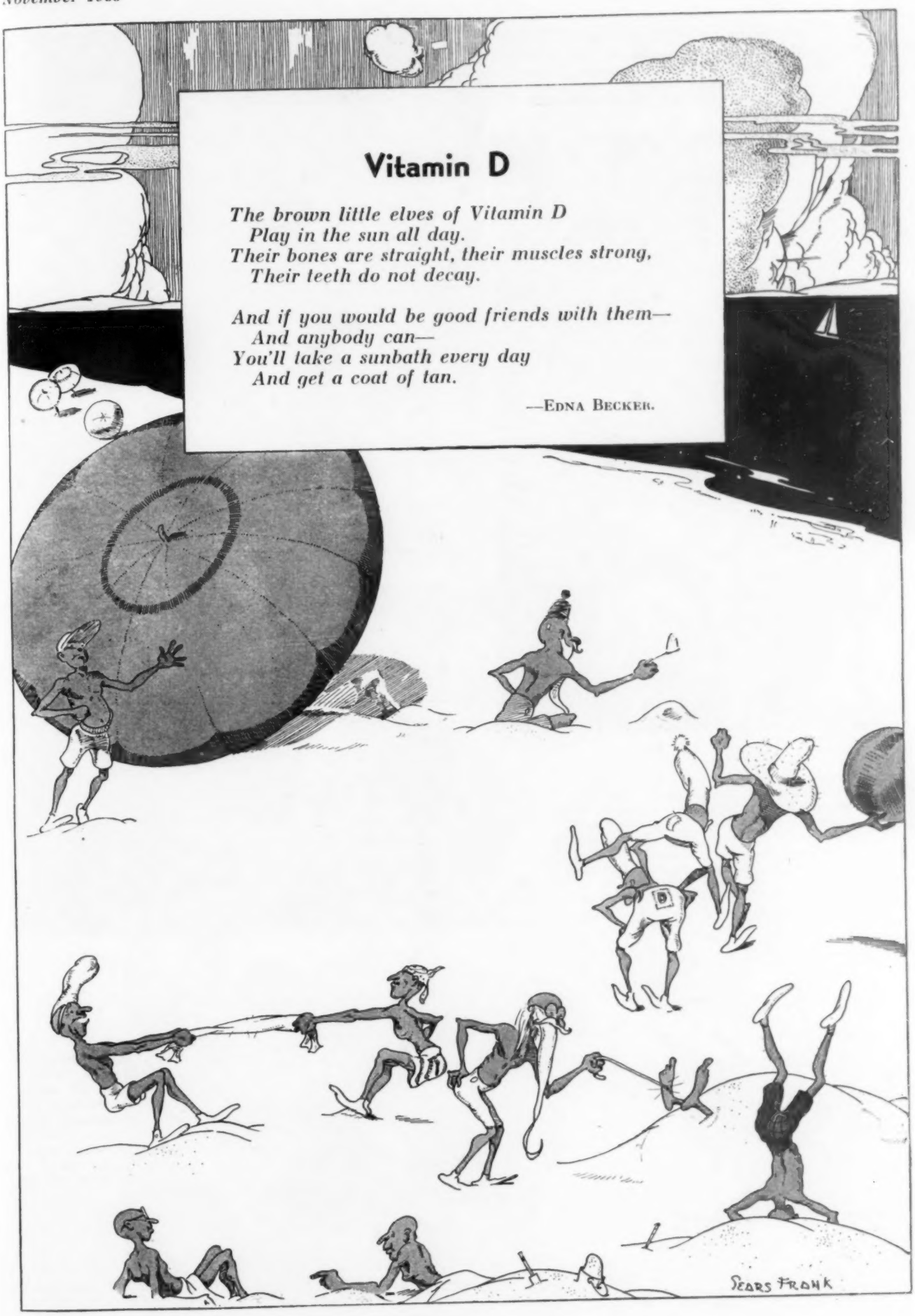
Thus work for the hard of hearing enlists three branches of medicine: otology, social work and education. The social worker is concerned with the atypical child's need for adjustment and his obvious right as a human being to a life as full of opportunity as possible. The otologist believes that good health includes good hearing, that conservation of hearing is medically possible and that all children should have their hearing tested at regular intervals. The advanced educator believes that children, born with good hearing but losing part of it after the establishment of speech, should receive lip-reading instructions in their regular schools while continuing their studies side by side with their schoolmates who have normal hearing. All three agree that the general public, especially parents, brothers and sisters, need a vast amount of information not only about hearing but also about considerate and constructive handling of these handicapped children.

DEAFENED

Sounds are to her what flowers are to some women
Or jewels to their sisters—to be gathered in
With gentle greediness, furtively rejoicing
As in the repetition of a small, bright sin.

She makes bouquets of sentences, shrill spoken,
And boutonnières of single, loud-called words.
She pins her breast with whistles or bells clanging,
Yet her eyes are soft and plaintive as a bird's.

By Violet Alleyn Storey


Vitamin D
The brown little elves of Vitamin D
Play in the sun all day.
Their bones are straight, their muscles strong,
Their teeth do not decay.
And if you would be good friends with them—
And anybody can—
You'll take a sunbath every day
And get a coat of tan.
—Edna Becker.
SEARS FRONK

THE LARGEST FRUIT KNOWN GROWS ON THE JACA TREE IN BRAZIL. THE FRUIT, WEIGHING FROM 30 TO 40 POUNDS, HAS HUNDREDS OF SEEDS THE SIZE OF CHESTNUTS AND IS COVERED WITH PULP.

Ewing Galloway

Acme

"ROOKIES" IN THE NEW YORK CITY FIRE DEPARTMENT MUST MASTER THE DIFFICULT SCALING OF "RUBBER" LADDERS, SO NAMED BECAUSE THEY BEND FROM SIDE TO SIDE WITH THE WEIGHT OF THE EAGER CLIMBERS.

THE RAISING OF GUINEA-PIGS ABSOLUTELY FREE FROM GERMS IS CLAIMED BY PROF. J. A. REYNIERS OF THE UNIVERSITY OF NOTRE DAME. THE PIGS ARE BORN IN GERM-FREE OPERATING ROOMS AND LIVE IN AIR CONDITIONED CHAMBERS THROUGHOUT THEIR LIVES.

Acme

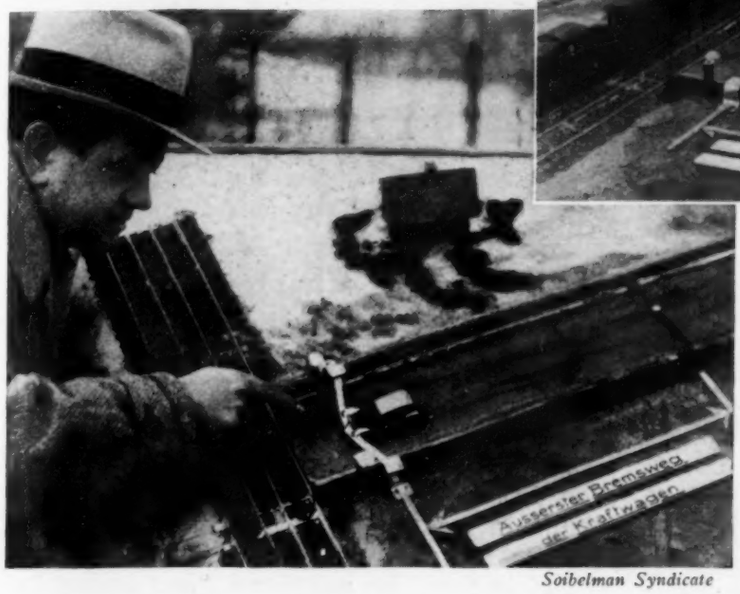
Acme

THE BLACK WIDOW MEETS HER WATERLOO. WITH A LETHAL SET OF MANDIBLES THE SOLPUGID BUG ATTACKS AND DEMOLISHES THE DEADLY SPIDER WHOSE BITE HAS BROUGHT ILLNESS AND DEATH TO MANY OF HER VICTIMS.

Signs of Safety

Soibelman Syndicate

A RECENT INVENTION TO PREVENT GRADE-CROSSING ACCIDENTS PROVIDES A DOUBLE SAFEGUARD BY MEANS OF TWO GATES CONTROLLED BY AN ATTENDANT AT THE SIGNAL STATION. THE MOTORIST MAY PASS THROUGH THE FIRST GATE, AS SHOWN ABOVE; THIS SERVES AS A WARNING. HOWEVER, IF HE IS GOING AT TOO GREAT A SPEED TO STOP QUICKLY THEN THE SECOND GATE, A SPRINGLIKE UNIT SHOWN TO THE LEFT, EFFECTIVELY BLOCKS HIM.



Soibelman Syndicate

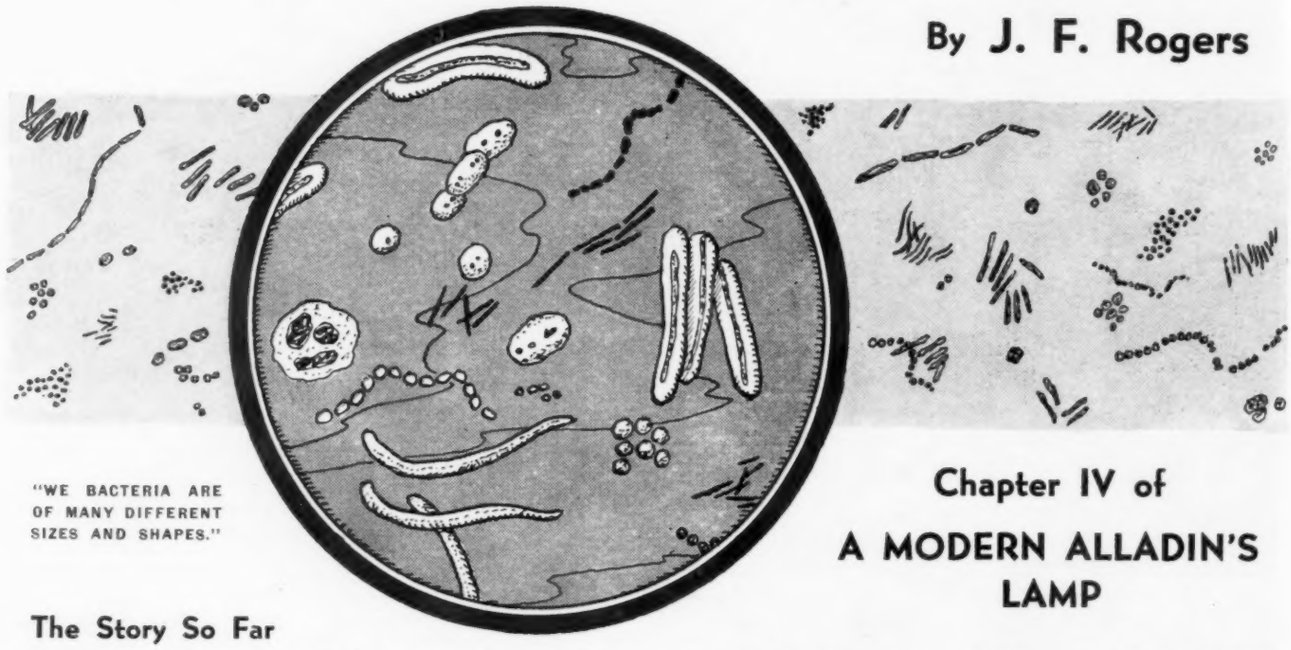
Ewing Galloway

Ewing Galloway

INDUSTRY TAKES PRECAUTIONS TO PROTECT ITS WORKERS. NO FOREIGN PARTICLES CAN ENTER THE NOSE AND MOUTH OF THE OPERATOR OF THE SANDBLASTING MACHINE, SHOWN ABOVE; AND GOGGLES SAFEGUARD THE EYES OF THE WORKER PICTURED TO THE LEFT AS HE POURS ACID.

THE HELPFUL BACTERIA

By J. F. Rogers



"WE BACTERIA ARE OF MANY DIFFERENT SIZES AND SHAPES."

Chapter IV of A MODERN ALLADIN'S LAMP

The Story So Far

Bill becomes very friendly with the bacteria which he discovers with the aid of his father's microscope. Left alone in the study, he peers into the microscope and there sees a new world, peopled with microbes to whom he seems a giant. Surprisingly enough, he finds that he can talk with them, and their chats reveal that the germs are afraid of sunlight but that they like dirt. They may bring disease and even death. They explain that hundreds of them can cling to the feet of a fly and thus be transferred to distant places. The friendly bacteria warn Bill against putting pencil points in his mouth and eating with dirty hands. Clean food, clean clothes and a clean person are enemies of bacteria.

"YOU ARE certainly very good and generous," I said, "to let me into so many secrets about yourself; and I shall try to profit by the knowledge. You have spoken of your brothers who, as you say, are a help to man. I confess I do not often hear them mentioned. Won't you tell me more about them?"

"We'll gladly tell you," said the spokesman for the microbes. "It would be a long story to tell all the good that most microbes do for the human race. You will be surprised, I think, to know how many different families of bacteria there are. We have never counted them all, but they number over a thousand."

"As many kinds as that!" I exclaimed.

"Yes, and perhaps many more," he replied. "We are of many different shapes and sizes; some of us are plump and round like a ball; others are long and slender, like a rod, while still others are gracefully wavy. Some of us are so small that you men cannot find us, and as yet the magnifying genii have not made us visible to your eyes. Others are much larger than we are, one kind being so large that 600 of them laid together would reach over an inch."

"That is not very large," I said.

"Not to you," he answered, "but among bacteria they are elephants in size. I started to tell you about the helpfulness of most microbes to man. You do not know it perhaps, but millions and millions and myriads of millions are at work now down in the soil all over the world, helping the corn, wheat, apple trees and strawberries and all those good things to grow. Without our help you men would have a sorry time of it with your farming. If you could take a teaspoonful of dirt from your father's garden and count all the germs at work there, you would find 5 million or more."

"What is this work that they do?" I said, feeling greatly interested.

"Oh, that is a secret that we typhoid germs do not know. All we can tell you is that they prepare the soil by getting the materials in it ready for the plants to feed on. They are experts in working with chemicals, and they have their laboratories scattered everywhere. We do not advise you to drive these useful germs out of your gardens, but you should try to keep us dangerous germs away."

"I have been told," I ventured, "that it is microbes and other invisible plants, like mold, which sometimes injure vegetables and fruit."

"Yes, that is true," replied the friendly little teacher. "But as we only attack people who have not taken the best precautions to guard against us, so we only injure vegetables or fruit that have not been properly taken care of and

have been injured by a fall or by heat or cold or in some other way. One kind of bacterium makes even canned fruit spoil. Therefore your mother is very careful to boil fruit long and well before putting it into jars so that all bacteria in the fruit shall be destroyed by the heat. If there is any lack of cleanliness or if insufficient heat is used, then a few bacteria get into the jars and cause trouble later. You see it is not wholly our fault if this happens. After all we do to make things grow, you can hardly blame us if we want to eat some of them.

"A great many kinds of bacteria are to be found in water," continued my tiny teacher. "We typhoid germs enjoy a swim occasionally and sometimes get carried through the water pipes of cities and into houses. However, since men are really learning to protect their wells and reservoirs from contamination, to use filters and to boil their drinking water, we have fewer chances to do that sort of thing."

"Well," I said, "I do wish you would keep out of milk."

"So you have read that microbes live in milk? Yes, they do. There are a thousand or more in every teaspoonful of the cleanest milk. If there are many more, and usually there are, it is because the farmer or the milk dealer is careless and uncleanly. Many people are beginning to think more about such things, but there are still some dairymen who care very little as to how many or what kind of germs get in the milk. Between you and me, however, we disease germs of typhoid, scarlatina, septic throat and the like are having a harder time every year to get into the milk bottles. This is because the health officials work to protect you by making the dairymen more careful and by pasteurizing milk that is not above suspicion."

"But I wish you would *all* keep out of the milk!" I exclaimed. "You make us feel uncomfortable."

"Oh, now you are foolish!" Mr. Bacterium replied. "Clean milk has no more germs in it now than it has always had. Besides, have I not told you that we are not all harmful and that some of us are actually helpful? One of the men who has studied us most carefully believes that the germs that live in clean milk help to prolong your life by destroying other more harmful microbes they find in your body.

"Do you know," continued my visitor after a pause, "that some of our people help in making butter and give it its flavor, while in the making of cheese we also have an important part?"

"I must acknowledge," I said, "that many of you are a great help to man, and I shall try to forget that any but a few of you are capable of doing us harm. But surely there is nothing else you can do for us."

"Oh, yes," was the prompt reply, "we help make your shoes."

"What!" I laughed. "My shoes?"

"Why, yes, we help to tan the leather from which shoes and harnesses and a great many things are made. Oh, we are not so bad as some people think. But perhaps I tire you with this long talk."

"Not at all," I said, "for I am learning so much! If I do not tire *you* with so many questions, I should like to ask whether it is really true that some of you actually live in our mouths and noses."

"Oh, yes," was the answer, "many disease germs, for instance my friends, the pneumonia germ and the diphtheria germ, sometimes find their way in on particles of dust which the wind carries about. Others of us live in the outer portion of your skin, for we are so small, you know, that we can easily travel into the little tubes through which the sweat or oil is poured out on the surface of the body. When you do not keep your body in good order these germs get a chance to become numerous and strong and make trouble by causing pimples or even painful boils. You need not frown so, for if you keep your body clean and strong these germs will not have a chance to multiply, and so they will not cause any damage whatever."

"We live anywhere," he continued, "where it is not too cold and not too hot and where it is not too dry for we need plenty of moisture. Above all things we avoid the light, for this has a bad effect on us. Of course, we want a place where we can find plenty to eat. You may be sure that we avoid homes where there is lots of sunlight and where it is so clean that we can scarcely find a scrap of meat or a grain of sugar or a drop of milk from which to make a meal. As for noses, throats and mouths, we prefer those that are unhealthy and particularly mouths which contain decayed teeth. A decayed tooth is our favorite home for here we find warmth, moisture, darkness and plenty of food always at hand."

(To be concluded)

"DOWN IN THE SOIL, BACTERIA HELP TO MAKE THINGS GROW."

New Books on Health

DIETETICS FOR THE CLINICIAN

By Milton Arlanden Bridges. Second edition. Cloth. Price, $10. Pp. 970. Philadelphia: Lea & Febiger, 1935.

THE SECOND edition of this book has been thoroughly revised. Its first edition was most favorably received. Because of recent advances, particularly in our knowledge of vitamins and the allergic diseases, these sections of the book have been completely rewritten as have also those dealing with other fields in which much advancement has been made. A significant and most valuable feature of the new edition is the section analyzing the various alcoholic beverages and providing the formulas of cocktails and mixed drinks of many types. The tables of foods in general have been simplified and extended to include most of the common proprietary foods. A general bibliography at the end provides an excellent reference to most of the recent and standard literature on the subject of diet. Altogether the book is one of the most practical and useful that has been developed to aid the physician who is interested in scientific diet therapy.

MORRIS FISHBEIN, M.D.

MODERN MOTHERHOOD

By Claude Edwin Heaton, M.D. Cloth. Price, $2. Pp. 271. New York: Farrar & Rinehart, Inc., 1935.

WITH a militant introduction characterizing as reminiscent of Pollyanna the average book on maternal hygiene, the author proceeds to set up and answer the following questions: Is childbirth woman's greatest risk? Is home delivery safer than delivery in the hospital? Do American women demand too much relief from pain? Are too many operative deliveries being done? Is the maternal mortality higher in the United States than in any other country of like standards? These questions, the introduction by Hazel Corbin states, are vital to those concerned, the expectant parents, and the book is an attempt to answer them satisfactorily for this group. The theme of the book is that the problem of maternal welfare in the United States is "primarily a social and economic one. Expectant parents who are able to avail themselves of the advantages of modern obstetrics may contemplate having a baby with serenity and confidence." There is an excellent chapter on mental hygiene in maternity, which deals with social aspects, personal mental hygiene, constructive measures for mental hygiene and especially with the unwanted baby. This chapter emphasizes the social and economic insecurity which "directly affect the mental as well as the physical health of the expectant mother . . . how dare we tell her to drink plenty of milk and stop worrying" when her husband is out of work and there is already insufficient food for the children? In this respect the book goes beyond the ordinary conception of a manual for expectant mothers and takes on some of the characteristics of a crusading implement.

The information offered is sound and with respect to the controversial questions raised in the introduction well balanced and temperate. A chapter on the expectant father is written without any attempt to be funny. This not only is an excellent addition to the already plentiful supply of manuals for the expectant mother but shows evidences of refreshing divergence from the usual approach.

W. W. BAUER, M.D.

THE MODERN GOLIATH

By Milton Anderson. Cloth. Price, $1.50. Pp. 91. Los Angeles: David Press, 1935.

THE David Press quite appropriately casts its first stone at a modern Goliath whom it conceives to be the talking pictures. The metaphor is apt so far as it describes the enormous potential power of the talking picture, but the implication that this modern Goliath must be slain is not carried through. The author proposes instead to harness the giant for the service of secular and religious education, particularly the latter. The book has no interest for health educators except so far as they may be interested in the talking picture as a psychologic factor and an influence in our modern community. With the author's lofty ideal of harnessing the power of the talking picture for educational purposes there would be ready agreement. As one reads the book the impression grows that the plan proposed is highly visionary and impractical. The author, judging from his own biographical sketch, has had considerable opportunity to acquire experience, but these opportunities apparently have not impaired his naiveté to any noticeable extent. If he can get for the financing of his grandiose ventures any of the "scared money" to which he refers he will be nothing short of a financial wizard. He proposes to meet the lack of educational talking pictures in schools and churches by producing three sample educational talking pictures of a proposed set of twenty-six, demonstrating them in schools and churches on sound equipment, getting contracts from the schools and churches to buy the equipment and rent the pictures, and pledging the contracts as collateral for the whole scheme. One is inevitably reminded of the old chestnut, "If we had some ham we could have some ham and eggs, if we had some eggs."

W. W. B.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Organizing Units of Work

THE ELEVENTH ARTICLE IN A SERIES ON THE CLASSROOM TEACHER AT WORK

UNLESS ONE is familiar with the purposes and methods of modern education the up-to-date schoolroom of today is something of a puzzle. The sharp division of subject matter into so-called subjects, such as hygiene, history and science, seems to be disappearing. One may sometimes look in vain for a daily schedule with an assignment of a definite number of minutes a day to hygiene. In reply to the query, "But don't you teach any hygiene?" comes the answer, "Certainly, but not as so much time definitely given over to health teaching."

The philosophy of the child centered school in sharp contrast to the subject centered school begins with the idea that the school so far as possible shall reproduce the conditions found in life. It is a miniature community with actual group and individual needs. Following the lead of actual life, learning takes place naturally when there is a consciousness of problems needing solution. Then facts are assembled, new relationships are discovered and a solution is reached.

For their solution these problems require recourse to fields hitherto known as geography, history, civics, health, art, English and mathematics. It is the purpose of the school to make use of the larger learning situations, drawing on all phases of experience and making use of all kinds of subject matter. These larger learning situations are called units of work.

Such units of work are intended to give the child a feeling of completeness in experience. In the old school, for example, children learned scraps of information here and there about shoes. Not only was this information unorganized and made up of scraps, but there were many and serious gaps in this knowledge. One year a pupil might learn something about footwear from the study of the ancient Romans; another year he might glean another bit of information about it from an item in a geography lesson, and so on. In a unit of work on shoes today the children try to get all the information they can about shoes and give it proper organization. They may begin properly with the study of savages in the tropics who had no footwear; thus they deal with the need of footwear and the beginnings of moccasins, shoes and boots. Their study may consider the details of manufacture from the earliest days. The importance of shoes for healthful living, how to select good shoes and how to take care of them will also demand attention. Before the unit is finished a class may plan an exhibit on shoes. A member of the class may be chosen to write an article about the unit for the school paper.

On completing such a unit of work the children will have a comprehensive knowledge of shoes. They will have consulted many books in history, literature, geography, science and hygiene. They will have used tools and practical art. Almost all the school subjects are called on for contributions in such a large learning situation.

Sometimes a unit may be primarily in some field of hygiene. Units have been worked out on the common cold, tuberculosis, milk, water, posture and foods. While such units would be of primary worth in health they would also draw on history, geography, English, art and other subjects.

Units of work are supposed to spring from real life situations and to be considered as worthwhile by the child. When properly supervised they are intended to involve real purposing and to make individual growth possible.

Teachers who wish to know more about actual units worked out in the schoolroom may want to consult the Teacher's Lesson Unit Series edited by William A. McCall of Teachers College, Columbia University, N. Y. These units sell for about 25 cents. Further information about them may be secured by writing to the Bureau of Publication, Teachers College, Columbia University, New York City.

Health Teaching in November

DURING November in most parts of our country it is beginning to be so cool that fires must be lighted and kept going in homes and schools. The windows are being shut down. Man is beginning to house himself in for the winted.

This foreshadows the coming of the common colds which are to continue to a greater or less extent until the windows are opened again in the spring. This month invites the consideration of such questions as the following: Is winter usually as healthful as summer? What are the particular dangers of winter? What can we do to make our winters more healthful? Is there any preventive of the common cold? What is the best thing to do when one gets a cold?

This is the month also when bonfires are common. Leaves are frequently burned in the street, and damage is done to property and persons. Particularly if the fall happens to be dry this may be a month of fire hazards. Now is the time to talk about the ordinances concerning bonfires. What is a safe way to burn leaves and rubbish? What is the best way to take care of burns?

November is also a memorable month for school children because it means a vacation and the celebration of Thanksgiving Day. This offers a chance to bring in some of the health problems that beset the Pilgrims when they first settled in America. It brings up the question of the healthful and happy way of spending the Thanksgiving holiday.

❖ SOLVING HEALTH EDUCATIONAL PROBLEMS ❖

HEALTH AND THE CHILD'S DAY

GRACE TIETJE
Kindergarten Teacher
WILSON DAM, ALA.

One may be a teacher and also a poet. This is true of Grace Tietje, who sees beauty in childhood and realizes that the chief business of children is all-round growth. No wonder that out of such satisfying healthful experiences she should exclaim at the end, "Life seemed good." Let us try to capture her enthusiasm.

A DAY in September, a golden day. Warm winds, quivering velvety sun, a hillside, many children, a schoolroom. By what experiences shall we verify life? Shall it be done vicariously or by actual living? Again, there is the possibility of an artistic combination of the two.

We were a group which had been favored by having an intelligent parentage. That being true, we possessed minds and bodies which could experiment with both to advantage. We came from immediate identity with food, family, wash days, well kept lawns, dogs. We continued life from that point only by removing it to what seemed, at first, a little less personal basis. All of us cried less readily when we fell down. We listened to a group suggestion of activity and gradually moved into a rhythm of our own. It was accomplished with some degree of ease. Life still vibrated around us but with extended meanings. Where care of the baby and other family members had offered dramatic or tender moments, now a living green caterpillar under a gray stone offered opportunities for discovery. "He's squashy." "He'll sting you." "Come here to me, Humpy!"

Days of research, observation, building and feeding brought unbelievable results—a monarch chrysalis! "They look like little green balloons!" Moving quivering balloons. "We'll watch them go up some day."

Days of quiet effective growth. Records showing a time of birth at hand. Good care resulting in a sight which we shared by varied responses of wonder. We had followed every step, and yet here was something scarcely believable—orange and black butterflies! A repetition of the fall day itself with the gold heat reflected back from bronze stones. We let them out of the cage. They went up and out across the ravine on a southern migration.

How shall we care for the well being of our children? If varied interests make for the general health of adults, why should we limit the children? When a child is given opportunity to choose from the fields of science, art, industry, literature, music, then he too can find the work which gives a deep satisfaction. He seeks help in difficulties because the thing under consideration has meaning. He learns to recognize an authority which must provide for the good of the entire group. Such work gives endless opportunities for adjustments. Satisfying experiences in these various fields help the child to grow an inner feeling of security which comes about through successful accomplishment.

On the other hand, he has received the needed checking which actual experimentation gives one. Milkweed caterpillars die unless they are cared for properly. A block dam will collapse if the weight is too great for the number of blocks used in construction. An encyclopedia gives valuable help in clarifying points of difference. Thus the child learns to face results and reconstruct his thinking and method of attack. He early learns that desirable combination of being flexible and yet firm in a decision.

Interests such as these give opportunities for the needs of general growth. All large muscular coordinations are called into play through the constant lifting, pulling, pushing, running, walking and balancing required in the manipulation of materials.

Many of the finer coordinations are called into play through crayon work, painting, writing, tying shoes and apron strings, carrying and placing lunch equipment, and cutting paper and cloth.

Through such social experiences as noon lunches together, party plans for birthdays and holidays, we are given excellent opportunities for thinking together of the food needs of the body.

Safety of the group is a great consideration. In the dramatic play of boat building it is necessary to nail cleats to gangplanks to prevent a collapse when children are standing on an incline. Nails must not be left around carelessly. Life boats are the necessary part of any steamship's equipment. What more natural way could be found for learning how to take necessary precautions?

While verifying life at this level of development there is one element which ties the young child securely to an experience, whether it is pleasurable or otherwise. That element is emotion. We remember those events connected with strong emotional moments in our lives. What will help to give stability? Widening horizons through a variety of experiences means facing reality at any growth level. It takes courage for a kindergarten child to venture into strange places: a roundhouse and train yard is a noisy world. An opportunity to be group leader and watch for street-crossing signals demands a new maturity. All this and more is the child's challenge to grow a physical and mental balance. Then again there is that time in which we live and just absorb quietly, or at least

WE HAD FOLLOWED EVERY STEP; YET HERE WAS SOMETHING SCARCELY BELIEVABLE!

in our own way we appropriate any present stimulation. No one suggests anything. We look and feel and think. The day is there. Around us is native beauty: long grass, short grass, white branched sycamores, winding paths, old fences, bridges, falling acorns, strong winds. Living with these, feeling them, sharing them, one can never be overcome with an extreme sense of futility. Our group found all this at the schoolroom door. We returned to our workshop and chuckled together over the adventures of that book child, Christopher Robin. We too knew that "The sea was galloping gray and white. . . . We clambered over the humping sand."

Whole days we lived together. Science verified experience. Art illuminated it. Life seemed good.

THE DAY IS THERE. AROUND US IS NATIVE BEAUTY; AND LIFE SEEMS GOOD.

A FACULTY HEALTH COUNCIL

EDNA YOUNG BOND
School Health Education Director, New Jersey Tuberculosis League
NEWARK, N. J.

As our schools have gradually become child centered in theory and practice the belief that every teacher should be interested in the health of her pupils has grown. This has led to the formation of faculty health councils. A director of health education tells about the success of one of these councils. Is there a need for such a council in your school?

THEY SAY there is nothing new under the sun; and certainly councils, which have existed since time immemorial, are not new. However, it is only within the last few years that faculty health councils, as such, have sprung up in secondary schools throughout the country.

Exceptional programs speak for themselves, and in illustration of a successfully functioning council the outstanding achievements of the Faculty Health Council of Madison, N. J., which was organized in 1932, are herewith briefly summarized.

Madison, located in Morris County, is a town of approximately 8,000 population, situated twenty-odd miles from New York City, with a school population of about 1,800, including parochial as well as public school pupils.

Based on the premise that health is the concern of all as well as of a professionally chosen few—for instance, the nurse and the physical education director—the council was organized to enlist the interest of all, the total school personnel, and reap the benefit of pooled experiences and suggestions.

The supervising principal was the motivating spirit in organizing the council, which included the school physician, the school nurse, the president and health chairman of the local parent-teacher association, the principal of the school; deans of students, representatives from the departments primarily concerned with the furtherance of health such as the visiting teacher and the health and physical education department, representatives from other departments which have definite contributions to make to the health program such as the English, art, social studies, science and domestic science departments, and representatives from the four elementary and parochial schools as well, thereby making possible a unified procedure from kindergarten through the twelfth grade.

The council met regularly under the chairmanship of an especially appointed counselor to discuss the health needs of the school as revealed by his report and to devise a coordinated plan by which those needs could be met through cooperation of the entire school personnel, the parents and the existing health agencies in the community.

During the three years since the Madison Faculty Health Council has been organized the council has been fortunate in its leadership since counselors have been appointed who were exceptional not only because of their experience, advanced educational theories and innate ability, but because none was top-heavy with his own professional interest, which is an exceedingly important item.

The council recognized that a well rounded school health program includes at least three objectives: (1) provision of a thoroughly healthful school environment; (2) supervision of the health of the individual student and teacher, and (3) inculcation of health knowledge and health ideals. The council set to work to determine the outstanding health needs of the school; and in three years' time various committees have effected the following results: (1) a reconstruction of the curriculum for the kindergarten and first six grades along health education lines; (2) the making of an extensive study of all health agencies in the community and county so that every one would be acquainted with available resources and facilities; (3) the working out of efficient machinery whereby a more thorough and detailed physical examination of all high school students could be accomplished during the first week of school in the fall before embarking on a heavy schedule or participating in athletics and other activities involving strain; (4) the establishing of a more effective follow-up, making possible more speedy correction of physical defects; (5) a study of existing malnutrition in the schools and the devising of ways and means by which this could be eliminated to a great extent; (6) a study of the causes of absence, which with the cooperation of the visiting teacher took on a new light; (7) an extensive survey of the physical aspects of the buildings, followed by the effecting of changes where needed; (8) the furthering of a tuberculin testing survey, with x-ray examination as a follow-up for positive reactors, and an educational program which preceded the survey; (9) a study of school lighting, both natural and artificial, using the light meter, which resulted in the repainting and rewiring of one school, the change from single to double shades operating from the

middle sash, and the rearrangement of seating facilities; (10) a hearing survey made with the use of the audiometer; (11) a foot survey, the organizing of classes for corrective exercises and the study of shoes of all times and types, culminating in an appreciation of correct types and their health significance, and (12) the forming of a safety council the subdivisions of which organized a student patrol, a fire prevention study, and an auto drivers' club for those approaching the licensed age for driving.

These are a few examples of what a unified, hard working, thoroughly interested faculty health council can accomplish for the furtherance of health in a community, using the school situation as a unit of endeavor.

THE HEALTH QUESTION BOX

WILLIAM L. GOULD, M.D.
Recent Medical Director of Schools
ALBANY, N. Y.

It is easy and agreeable to teach boys and girls what they really want to know about health. Dr. Gould tells us how this was accomplished through a question box. It was a device which helped to solve some of the perplexing problems of health teaching in the high school. You may want to give it a trial.

THAT HEALTH is rated as one of the most important subjects to be taught is admitted by educators. How should this subject be taught?

It was long realized at the Albany Senior High School that the pupils were graduating with little or no health instruction. The principal was most health minded. The state department of education could offer only a list of health items which might be taught and suggest helpful texts and references.

But who should teach health in the senior high school? The curriculum was already overcrowded. There were no vacant rooms or funds available. To overcome all these difficulties the health question box was inaugurated.

The health question box is exactly what its name implies—a question box on health matters. The pupils place in a box written, unsigned questions on the chosen health topic of the day. It is surprising to discover how uninformed most pupils are concerning the simplest of health matters.

Efforts were directed to find out which health topics interested the pupils. A survey disclosed the following items: cleanliness, including care of the hair and skin; nutrition and development; care of the teeth; circulatory system; respiratory system; gastro-intestinal system; skeletal and muscular systems; nervous system; first aid and others.

The girls were patricularly interested in cosmetic questions, such as those relating to the skin, and obesity. The boys were inclined more toward such matters as physical development, athletics and first aid.

Because of the natural sympathy and whole-hearted support for this instruction by the department of physical education, classes were conducted in the gymnasium. However, if available, a separate classroom would be preferable.

It seemed impracticable for classroom teachers to institute any health teaching. The school nurse might attempt to conduct the classes, but the spontaneity and range of the questions might at times even be beyond her knowledge.

Because of the fact that our teaching plan permitted little previous preparation the instructor had to be prepared to answer all possible questions in an impromptu manner. The school physician appeared to be the ideal teacher for this particular plan. Numerous questions asked were not to be found in ordinary text reading. The school physician had to use his judgment in answering questions and to give the opinion, among others, that would best fit the particular case. The pupils respect the school physician for his knowledge of the human body just as they do their private physician.

In general assembly the pupils were given a health "pep" talk by the principal. The plan of procedure was described. The pupils, as they came to gymnasium, voted for the health items in which they were interested. Subjects for discussion were chosen in the order of popular demand. The pupils were informed at one class what the subject would be for the next. Any questions concerning the particular topic could then be brought out and answered.

As the pupils came to class they deposited their written, unsigned questions in a box. These questions brought forth expressions even from the most timid, who ordinarily would not publicly voice their own physical problems.

The school physician then briefly gave a few general remarks on the topic of the day. He then proceeded to take the written questions from the box in whatever order they happened to come. In this way the pupils' interest was aroused as to what was going to be asked next. Answers were frequently repeated either for elaboration or for emphasis.

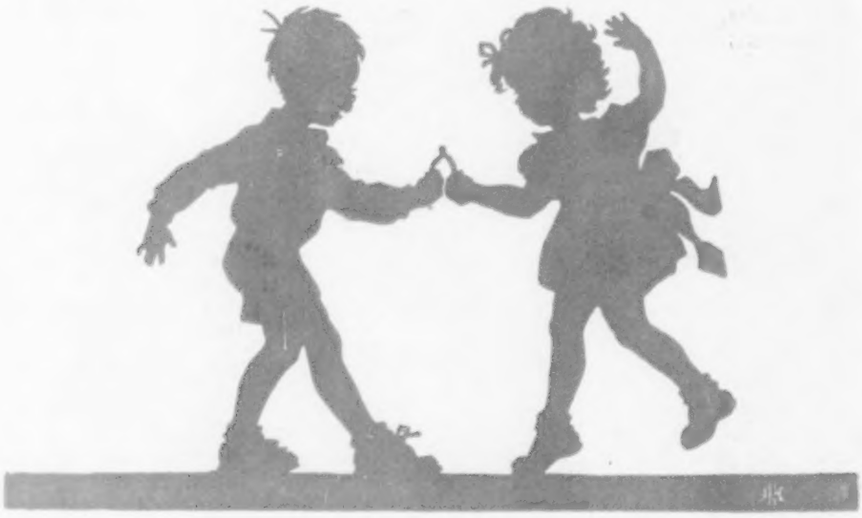
Practically all the pupils asked questions, many more than one. In his answers the physician had to consider the level of the pupils and keep away from medical terms as much as possible. The medical terms used were briefly defined or synonymized. Because of the limited time the doctor's answers were brief and to the point.

To keep up the interest of the pupils, illustrations were presented by any of the following means: blackboard, color crayons, x-rays, demonstrations by the physician on himself or on the pupils, movies, leaflets and texts. Supplementary reading was recommended.

Following the answering of the written questions several minutes were allowed to answer additional questions from the floor. At the end of every period a number of pupils congregated about the physician to seek further advice.

The questions and their answers were arranged in proper sequence, typed and then mimeographed for distribution among the pupils and faculty. It may readily be seen that at the end of the year the pupils would thus have aided in compiling their own textbooks on health.

To illustrate some questions and answers, let us consider the topic, care of the skin. Twenty-four questions and answers taken from the question box were arranged in suitable sequence, presenting in themselves a leaflet on this particular topic. Some of these questions



were: What is the skin? How does the skin protect the body? What are the pores? What is the best soap to use? What should be done about body odors? Is there any authorized information about cosmetics? What does the appearance of the skin frequently disclose?

The health question box plan may be followed in any school. It requires no special room, no special place in the curriculum, no expense, no additional equipment and very little extra preparation. This modern pupil participation project holds the interest of the pupils at high pitch.

The only expense that may be incurred is in preparing the mimeographed sheets to compile the pupils' self made textbooks. This was done either in the school or in the medical supervisor's office. The cost of the paper was the only expense.

The question box, conducted once or twice a month throughout the year, covered the most salient features on health. It was advisable in certain instances to select timely topics, such as tuberculosis and the organs of respiration, during the time when a city-wide antituberculosis campaign was being conducted. It seemed to be a good idea to designate such times as Posture or Nutrition Week or Month. During this period everybody in the school was posture-conscious or nutrition-minded.

Examinations might be given as in any other subject. This would be an aid in determining how much the pupils benefited.

It would seem logical, as health is a most vital subject, to give it the prominent place in the curriculum that it deserves. The establishment of the health question box in a school system would do much to aid in accomplishing this aim.

NEW HEALTH BOOKS
for teachers and pupils

THE STORY OF TUBERCULOSIS

By Louise Strachan. Mimeographed. Pp. 6. 50 West 50th St., New York City: National Tuberculosis Association, 1935.

ONE OF the most serious difficulties in teaching children about the prevention and cure of disease is to avoid creating an atmosphere of fear. One way to overcome this tendency is to tell about the great victories that have been won over disease and to inspire hope for the future.

Miss Louise Strachan, director of child health education, has done this admirably in "The Story of Tuberculosis." It gives an interesting historical survey of the battle against tuberculosis from the earliest times. This story could be read with pleasure by children in the upper grades and high school. Send for a free copy, and put in on your reading table.

HANDEDNESS: RIGHT AND LEFT

By Ira S. Wile, M.S., M.D. Price, $2.75. Pp. 439. Boston: Lothrop, Lee and Sheperd Company, 1935.

IT IS a well accepted fact that the vast majority of people are right-handed. This has led to the formation of habits, customs and social organization based on man's preference for using his right hand rather than his left. Scissors are constructed for right-handed people, and in shaking hands we use the right hand rather than the left. The tendency on the part of society to make others conform to what the vast majority do is shown in our schools where all too frequently children who are left-handed are taught to use their right hands in writing.

Within recent years two questions on this point have been raised by scientists: Why do men naturally prefer the right hand to the left? Should children be taught to use their right hands in preference to the left if they are naturally left-handed?

Almost the entire content of this intriguing book is devoted to the answer of the first question. Dr. Wile has consulted a vast amount of material dealing with left-handedness among primitive peoples, the evidence from philology, hand preferences in ideas of luck and religion, and hand symbolism. It is impossible to glean from the vast amount of material reviewed why most people prefer the right hand unless it is due to dominance of brain structure on the left side.

Although Dr. Wile takes little space to discuss the second question it is clear that he believes left-handed children should be trained to use their right hands with caution. An additional chapter on "handedness" from the point of view of the educator would have made this book of greater practical value. It would also have rounded out what is otherwise a remarkably complete review of an important problem.

To Contributors: — *The editor of the School and Health Department will be pleased to receive articles dealing with the solution of concrete and practical health education problems in the school. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

ANOTHER LETTER ABOUT SECONDARY EDUCATION IN THE UNITED STATES

Sept. 27, 1935

Dr. Morris Fishbein
Editor of Hygeia

535 North Dearborn Street
Chicago, Ill.

Dear Dr. Fishbein,

On page 954 of the October *Hygeia* appears a letter in which Charles Willing of Philadelphia takes you to task for publishing a map indicating that the academy founded by Franklin in 1751 was the first important step in secondary education in Pennsylvania.

Mr. Willing then goes on to enlighten you by stating that the William Penn Charter School, founded in 1689, deserves that honor.

So far so good, but Mr. Willing next avers that this institution and the Boston Latin School in Massachusetts "are now the oldest institutions of their kind in the United States, all the others founded before 1689 having passed out of existence."

The Roxbury Latin School in Boston was founded in 1645, nine years after the Boston Latin School. It is still making significant contributions to secondary education and so far as I know has been in continuous existence. At least it was very much on the job when I graduated there in 1911.

Partial information, wrote Mr. Willing, would seem to be worse than no information at all. I agree.

Sincerely yours,

JAMES A. TOBEY, DR. P.H.

QUESTIONS AND ANSWERS

Nutritional Value of Marshmallows

To the Editor:—What ingredients are used in the manufacture of marshmallows? Are these ingredients healthful for children?

F. W. M., Oregon.

Answer.—The principal ingredients in marshmallows are gelatin and sugar. In any reasonable quantity, marshmallows are quite satisfactory as a part of the diet of children. It is not wise to say that any food is "healthful" for children because many persons seem to attribute great virtues of healthfulness to individual foods.

All that any food can contribute to health is a supply of nutritive material. In the case of marshmallows, this is principally carbohydrate with a small amount of protein, but the protein is not of superior grade from a nutritional standpoint even though the gelatin used may be of the highest quality. The proteins in gelatin are not complete proteins as are the proteins in meat, fish, eggs, cheese and milk.

Marshmallows are useful as ingredients of dessert or may be eaten as candy at the end of a meal.

Loss of Cartilage

To the Editor:—Is there such a condition as absence of cartilage in the feet? Does the cartilage ever come back? What causes the absence of cartilage, and about what percentage of cases are there in the United States? In my case the absence of cartilage began at the age of 58. Will the pains in the feet increase or decrease with age? Does absence of cartilage occur in young people? Does the absence of cartilage affect man or woman most? Does cartilage bind the bone joints together?

R. F. M., Maryland.

Answer.—Cartilage may be lost in the aged as a simple process of wear and tear or in people of any age as a result of destructive inflammation. Cartilage once destroyed is never restored but may be replaced in part by fibrous tissue.

Loss of cartilage resulting from wear and tear, even in the aged, is a relatively rare condition. No figures are available as to frequency.

At times there may be ankylosis, or stiffening, if the loss of cartilage is great. When stiffening occurs pain disappears.

Absence of cartilage due to wear and tear is somewhat more frequent in men than in women.

Cartilage does not bind the joints together but serves as a smooth covering to allow painless motion. The joints are held together by ligaments.

Retinitis Pigmentosa

To the Editor:—Can you give me information about retinitis pigmentosa and night blindness?

J. J. N., New Jersey.

Answer.—Retinitis pigmentosa is sometimes inherited. Its first symptom is night blindness, which commonly begins in early life and slowly increases. Later the field of vision becomes narrowed; although for many years the thing looked at directly may be seen, nothing is seen in other directions. Occasionally the vision may seem to get better or remain stationary for a time under some particular treatment, but no treatment has been found to benefit all cases. The best that can be done is to keep the general health good by proper food and outdoor exercise, and not to use the eyes for work that is too hard for them. The sight tends to grow worse from year to year, but some patients live to old age still keeping vision which is sufficient to enable them to go about. Some become quite blind after middle life. Retinitis pigmentosa may be complicated by other diseases that can be helped by treatment.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Phlebitis

To the Editor:—I have read about an invention of pressure applied in a vacuum for treating phlebitis. Please send information on this or any other treatment for this condition.

N. G. C., Oregon.

Answer.—The increase in circulation which can be brought about by producing negative pressure around an extremity was described in detail more than a century ago and has been, at intervals, rediscovered and redescribed several times. Recently an apparatus has been designed and constructed which produces about 80 millimeters of mercury negative pressure and 20 millimeters of mercury positive pressure, alternating from two to four times a minute, for use in the treatment of patients who suffer from insufficient blood flow through diseased arteries of the arm and leg. When an artery is suddenly plugged by a clot, when the foot and toes are deprived of circulation because of prolonged exposure to cold, or when the larger arteries become rigid and narrow in older individuals who complain of cramping after walking a block or two, this treatment has proved useful. In case of phlebitis the treatment by alternate suction and positive pressure cannot do any good; in fact, it may be definitely harmful. The clot here is not in the artery but in the vein, and there is nothing to interfere with the inflow of blood to the extremity. It is the outflow of blood that is handicapped by a plug, which turns the vein into a fibrous cord and may or may not become permeable.

The logical treatment for phlebitis of the lower extremities will be advised by the physician; he may combat the swelling by elastic support or prescribe dietary restrictions or drugs which help to eliminate the fluid. Should the phlebitis be due to a definite infection the source of infection must be eliminated. Whatever the measures prescribed by a competent physician, they will be more effective if the phlebitis is of recent origin.

To Keep Them Healthy, Wealthy, and Wise

WIVES should not let husbands disregard slight aches and pains as men are prone to do. For as middle-age approaches, no one—not even those who otherwise feel in the best of health—can afford to ignore joint aches and related muscular pains. Although seemingly insignificant, these symptoms may be the forerunners of arthritis.

As soon as joints begin to pain and ache, a thorough x-ray examination should be made. This is your only dependable safeguard. Radiographs (x-ray pictures) graphically record the exact condition of the joints. If there is disorder and the suspected cause is a focus of infection in some other part of the body, such as the teeth or sinuses, the all-disclosing x-rays will locate it and show its extent also.

Armed early with this complete, authentic information, your physician can arrest serious developments. If, however, slight aches and pains which are Nature's first danger signals are allowed to go unheeded, the price may be chronic, crippling illness.

X-RAYS HELP TO KEEP YOU WELL

If you would like to receive a copy of the free Eastman booklet, "X-rays and Health," just mail the coupon at the right.

EASTMAN KODAK COMPANY, *Medical Division*
363 State Street, Rochester, N. Y.

Please send me the free booklet, "X-rays and Health."

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Cancer of the Breast?

Many women who fear that they have breast cancer are worrying without cause

Most "lumps" in the breast are not cancer. But the dangers of untreated cancer of the breast are so great that every woman owes it to herself to discover the true nature of any lump, or other unusual condition, as soon as she becomes aware of it.

Breast cancers are being treated successfully—frequently without disfigurement. It appears, from the experience of a large number of cancer experts, that about 70 per cent of all cases, when treated properly and before the cancer has spread beyond the breast, show no return after five years. The chances of permanent cure are greatly increased if the condition is treated in the very earliest stage.

Breast cancer occurs at almost any age but mainly among women over forty. After a woman reaches the age of thirty, careful examination of the breasts should always be a part of her periodic health examination. Husbands should urge their wives to have examinations regularly.

Whenever a lump is discovered in the breast, a careful and exact study should be made to determine whether it is definitely cancer, possibly cancer, or not cancer at all. Your physician will probably recommend that the diagnosis be made by a specialist. In its early stages a breast cancer usually yields to expert use of surgery, with or without the help of X-rays or radium. Safety lies in prompt action.

METROPOLITAN LIFE INSURANCE COMPANY

Frederick H. Ecker, President — One Madison Avenue, New York, N. Y.

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Do You Know—

1. Who is known as the Pilgrim physician? *See page 968.*
2. The modern definition of a "milksop?" *See page 971.*
3. How bubonic plague is spread? *See page 972.*
4. Why there appear to be fewer crippled children now than in former years? *See page 976.*
5. The most important means for the prevention of toxic goiter? *See page 978.*
6. How illumination is measured? *See page 987.*
7. Whether man can live without the liver? *See page 990.*
8. Which is the underlying emotion that causes people to be ambitious, determined and aggressive? *See page 993.*
9. Whether sinus disease is curable? *See page 996.*
10. How much time to allow for cooking a turkey? *See page 999.*
11. That the nose never ceases to grow? *See page 1002.*
12. Why caffeine-containing beverages do not have any place in the dietary of children? *See page 1005.*
13. Which is the longest organ in the body? *See page 1009.*
14. The best way to transport the victim of an accident? *See page 1010.*
15. Who first successfully demonstrated the use of anesthesia in a major operation? *See page 1016.*
16. Who proved that malaria cannot be transmitted directly from man to man? *See page 1021.*
17. Who is meant by "the third parent of the child of today?" *See page 1022.*
18. How the government is helping the child with impaired hearing to overcome his handicap? *See page 1026.*

WISE USE OF LEISURE IS NOT A NEW PROBLEM

Education for the wise use of leisure is not a depression problem and has nothing to do intrinsically with the current existence of widespread unemployment. Forward looking educators and sociologists were quite as profoundly concerned over profitable and unprofitable uses of leisure in the boom times that preceded the depression. Leisure, *Understanding the Child* magazine explains, is freedom from worry as well as freedom from toil. Only when the economic basis of a man's life is reasonably secure can he enjoy the privileges and experience the satisfactions that rightfully accompany true leisure.

The problem of educational statesmanship is to devise an educational philosophy for a progressively developing machine age, in which less and less of man's time will need to be devoted to what has historically been called productive labor. A philosophy of the machine age would take as its first premise that machines, properly utilized, can become the means of man's release from the ancient curse of drudgery, can provide the foundation on which to build a world for the habitation of the free human spirit.

The essential ingredient that distinguishes worthy toil from drudgery is the free purpose of the worker. Work of the sort that in all ages has been the lot of the slave, the serf, the exploited man and that today continues to be the lot of many all over the earth is too likely to lack this ingredient. Drudgery debases, degrades and in the end brutalizes the drudge.

The moral value inherent in honest toil should be preserved by all means. Do not refuse the worker the right to determine for himself the purpose for which he shall roll up his sleeves and do battle with refractory nature.

Creative work may exact unending hours and exhausting toil; but it is the free work of the free man, motivated by his urge to express his own personality in the form of some product which bears the stamp of his hand and brain.

Neither creative work nor drudgery, however, can be endured without respite. The human frame demands reasonable recreation. Youth should be made to understand that work and play are not exclusive terms; that much of the best work in the world today is being done by people who have chosen their jobs under the compulsion of a creative urge. The wisest possible use of leisure, apart from recreational needs, is then to devote it to more creative activity.

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WHAT IS A "LAZY CHILD"?

It should be just as hard to associate the word "lazy" with children as it is to imagine a healthy young puppy being lazy, according to the *Ladies' Home Journal.* The child who is well is eager and energetic and has an attacking attitude rather than one of relaxation and withdrawal. Yet the phenomenon called laziness is all too common.

A typical case reveals that Florence, a sweet, gentle child of 11, was finally reported by her teacher to be "pleasant enough when I urge her; but she won't work." One visit to the child's home would have solved the puzzle for the teacher. From her babyhood Florence's father and mother had made it unnecessary for her ever to make a move for herself. They were now reaping the results—worrying because their child was lazy in school.

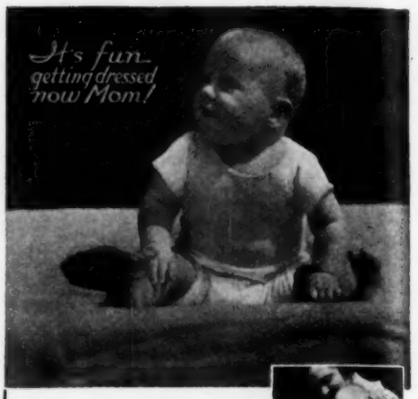
To Florence, however, it was the most natural thing in the world to let other people do the work. What initiative and ambition she may have felt had been smothered by the feather-bed kindness of her parents.

Another variety of laziness in children concerns the youngster who had had too little experience with success to be aware of its delights. Perhaps he was started on toys that were too old for him, or he may have had to play with children who were just enough older and more capable so that chances for any sort of leadership were lacking. He unconsciously schooled himself to be a follower. Laziness, then, may only be covering up the acute discouragement of a child of whom the impossible is being asked, particularly with regard to school work.

Some of the most pitiful cases of "laziness" turn out to be deafness. While the family notices that sometimes they have to repeat things to the child, they believe it is simply due to his "dreaminess and inattention." Perhaps it goes unnoticed at school until he slips back a grade and some one begins to worry about the cost of his doing the work again. When he is moved to the front seat and the teacher makes a special effort to keep him abreast of the others, the "laziness" disappears and the child, radiant at being understood, emerges from his mask of dulness.

Sport, which still keeps the flag of idealism flying, is perhaps the most saving grace in the world at the moment, with its spirit of rules kept, and regard for the adversary.

—*John Galsworthy.*



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THE PROBLEM OF THE TIRED BUTLER

(Continued from page 1009)

not show. There should have been some history of headaches, for example. He did not complain of any attacks or spells of dizziness, and he did not show any unsteadiness or irregularity in his gait. I particularly asked him about these, and he denied them all. I not only asked him, but to make sure, I had him walk for me, and he did not show the slightest tendency to stagger or deviate to one side or the other. In addition, there weren't any of the eye signs that are often seen in the presence of brain tumors; his pupils were equal in size and reacted normally. So brain tumor, in all probability, was out. If you look at the story as a whole you'll see that there were only two obvious observations: The condition was a general one, and it was mainly muscular in its manifestations."

"Didn't you make any examinations?" I interrupted. "Weren't there any blood examinations, x-rays or that sort of thing?"

"No, nothing of that kind was really needed," Trebor replied with a grin. "Don't forget that this laboratory business is only a single phase of medicine. Sometimes there isn't much of that sort of work needed. As a matter of fact, we did certain laboratory procedures later on, but they were merely corroborative. The diagnosis was made without them, there in the garden."

"I've got it!" I exclaimed. "How does this sound? Most of what this fellow complained of—weakness, fatigue, dropping things, and so on—had some relation to his activity, didn't they? In other words, he didn't have them when he was sitting down, but only when he was doing things, things that made him use his muscles. How about this being a muscle disease of some sort?"

I'll admit that I felt rather satisfied with what seemed to me to be a logical train of thought, especially as Carey looked just a little chagrined that he had not figured it out too. But he was not going to give me any credit. "I suppose you'd examine his muscles and prescribe a little gym work," he grunted.

Trebor grinned at both of us. "That's not so bad, Gavin. I thought of something like that too, so I did examine his muscles. Now it is logical to suppose that if there was something wrong with their function the most likely thing to expect would be some evidence of lack of development or some signs of wasting—atrophy, we call that—

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or something of that sort. Unfortunately, Wilks' muscles were perfectly normal in size and development for his age and type and showed no evidence whatever of atrophy."

"Muscle disease!" laughed Carey with a derisive gesture in my direction. "If you had any muscles inside your head this would show the shape they're in!"

"Did you ever hear about the fellow who laughed last, Inspector?" queried Trebor slyly. "As a matter of fact, Wilks did have a disease of the muscles; and the very fact that they were all right to look at and not atrophied made the diagnosis!"

At this I laughed out loud and presented Carey with one of my loudest and longest "raspberries," and this proved too much for our combined gravity.

"For Pete's sake!" Carey exclaimed. "What sort of stuff is this you're giving us? How could a man have a muscle disease and not have anything the matter with his muscles?"

"I didn't say there was nothing the matter with them," Trebor laughed. "I said they looked all right—but they weren't, not by a blamed sight. What Wilks had was a disease called myasthenia gravis. You may have heard of asthenia, a word which means loss of strength? Well, the prefix 'my' refers to muscles; myasthenia means loss of muscular strength, and 'gravis' signifies that it is of marked degree."

"How on earth do you get a thing like that?" I inquired.

"You tell me. We don't know the cause. It has been thought to be the result of toxemia of some kind, and it has been attributed to disturbances of the internal glands or to some unknown disturbance of muscular metabolism. There are various theories, but no one of them has ever been proved. It's an odd sort of disease all around. As muscular movements are initiated and governed by the impulses sent out along the motor nerves, it would be natural to suppose that the root of the trouble would be in the nervous system. And there are other diseases which in their symptoms rather closely resemble myasthenia gravis and in which the nervous system is the seat of the trouble. But there is no lesion of the nervous system in myasthenia gravis and, perhaps the oddest thing of all, there don't seem to be any muscular changes, either. The muscles appear normal to the naked eye, and even under the microscope there are no structural changes to be seen. Certainly there are none

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that are marked or have any apparent relation to the disease or that would furnish any explanation for their functional failure. In fact, it is this very lack of any demonstrable change in their appearance, the absence of wasting and so on, which makes the differential diagnosis from the other conditions which resemble it but in which muscular atrophy is a marked and striking feature."

"Hasn't the nervous system anything to do with it?" I asked. "You said that it was the central power house from which the muscles got their orders."

"That's right; but when you examine a patient with myasthenia gravis there is no evidence of nervous disturbance. His reflexes tell you that, for they're normal."

"You mean when you hit him on the knee and his leg jumps?" Carey inquired.

"Exactly!" smiled Trebor. "That's a reflex, only one of many that we try out on patients at times. They were of some importance in this case for there are three diseases with similar symptoms. In one of them, called progressive muscular dystrophy, which means simply progressive faulty nutrition of the muscles, there is marked muscular degeneration; in another, called progressive muscular atrophy, the cause is a change in certain nerves of the spinal cord; but in myasthenia gravis the characteristic thing is an abnormal fatigability of the muscles without much evidence of degeneration or atrophy."

"I'll swear there sure are some goofy diseases!" Carey burst forth. "You fellows certainly run into some tough problems."

"Agreed," said Trebor. "It isn't as easy as it looks, or as some people sometimes seem to think it is."

"What can you do for a thing like that?" I asked. "Was Wilks all washed up on buttling?"

"Well, a few years ago, not so many, either, he would have been, for there was very little one could do, and that didn't amount to much. The disease is progressive, and the patient simply went from bad to worse."

"Does it affect all the muscles?" Carey interrupted.

"No, only the voluntary muscles, those whose motions you can control, like those of your arm, for example. You can make them lift it, or you can keep them still and let it hang where it is. The involuntary muscles are the ones that work independently of anything you can do about it, like the heart muscle, for example. You don't give that any orders; they come from the central power house. Myasthenia

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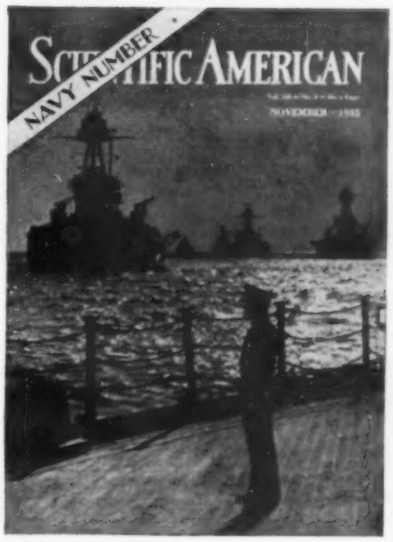

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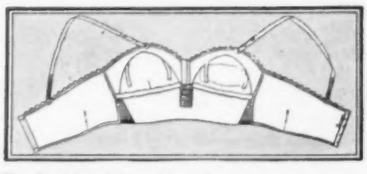

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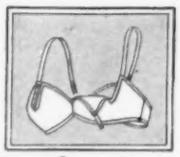

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gravis does not affect the involuntary muscles; and come to think of it, that's rather lucky."

"Well, what in thunder is the matter with them?" said Carey in a puzzled tone.

"To put it simply, they tire too easily and too quickly," Trebor replied. "If you start to chin yourself in a gym you know there comes a time when you cannot lift your body up with your arm muscles any longer because they are fatigued. After a rest, however, you can start again. Well, in myasthenia gravis the muscular fatigue comes on with abnormal rapidity. You start to walk across the room, and after a varying distance, depending on how advanced the disease is, you have to stop because your leg muscles are simply too tired to move your legs.

"When you talk, the muscles that move your tongue and the other mechanisms controlling speech become tired, and then you can't talk distinctly. In fact, eventually, you can't chew your food efficiently, simply because the muscles that move your jaws are too tired to lift them."

"And that's some fatigue!" I added.

"It's a fact. The funny thing is that after a little rest the muscles are able to begin to work again; but they can't keep it up."

"Did you say that there was some kind of a treatment for it now?" asked Carey.

"Yes, fortunately," replied Trebor. "In the old days about all that could be done was to give such patients strychnine, which causes muscular contraction if you give enough of it; but that sort of treatment had obvious disadvantages. Personally, I'd rather have myasthenia gravis than strychnine poisoning. Within recent years, however, it has been discovered that an alkaloid extracted from a plant called Ephedra vulgaris has a remarkable effect in this disease. This drug is called ephedrine and has given good results, especially when combined with a chemical, an amino acid called glycine or glycocoll. This treatment is not curative in any sense, but in many cases it has restored the patient to relatively normal activity and comfort and enabled him to carry on his usual occupation to a more or less normal degree."

"Does the patient have any pain or discomfort?" I inquired.

"There isn't any pain," answered Trebor, "but you'd find it very uncomfortable to be unable to hold your pen after writing a half dozen words or so or even to have to stop chewing your dinner because your jaw muscles absolutely had not the strength to pull your teeth together and left your mouth hanging open."

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"It would certainly make me uncomfortable to have *his* mouth hanging open," interjected Carey. "Such funny things fall out of it."

"Considering what I've seen you pile into yours," I retorted, "it's a wonder you ever manage to close it at all."

"Any one who didn't know you two," laughed Trebor, "would think there was about to be a row."

"I come here every time," smiled Carey, "determined to try to guess one of these puzzles, but you always have me stopped. You named this one right. It was a problem!"

"All patients are problems," smiled Trebor. "Fortunately they're not as queer as this one. But let's skip that. There's been so much said about opening and shutting mouths that I feel I'd like to do something for mine. How about finding some place where we can do something about that?"

"That's no puzzle," replied Carey, "or if it is, I know the answer. Follow me, boys! Last man out pays the check!"

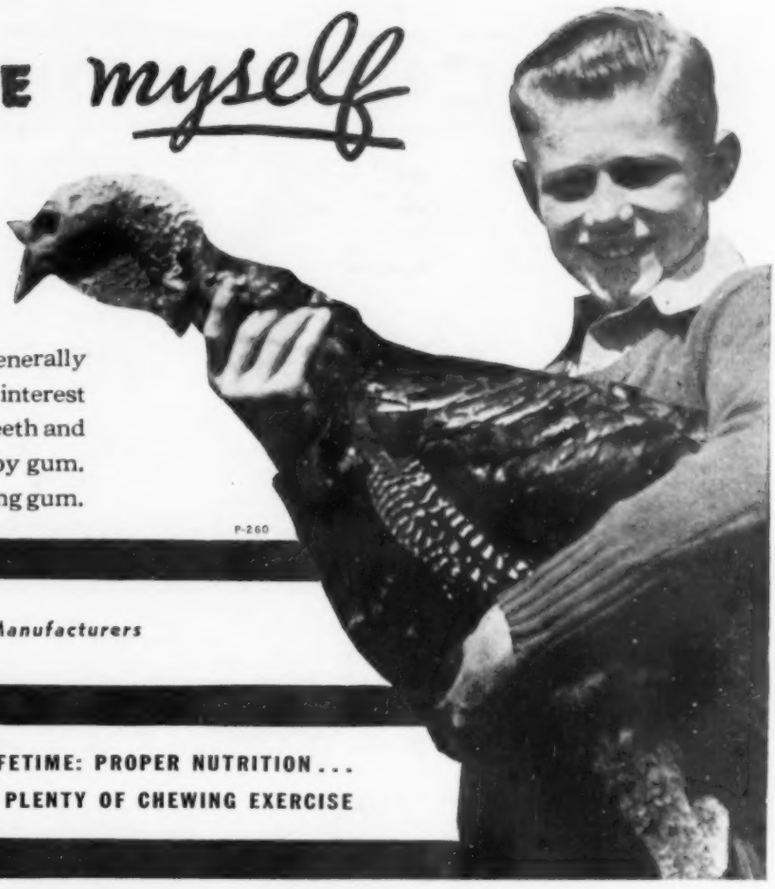
(To be continued)

[NOTE.—A comprehensive discussion of the conditions mentioned in this article can be found in *The Journal of the American Medical Association*, Nov. 24, 1934, in the paper by Drs. C. J. Tripoli, W. M. McCord and H. H. Beard.]

CORRECTION

In the September HYGEIA a list of facts concerning the human body contained the following erroneous statement: "There are 30 pounds of blood in your body." This amount is excessive, since the blood constitutes from 1/14 to 1/20 of the body weight.

RAISED THIS ONE *myself*



Put it up to a youngster's pride and he'll generally make good. This might even be a way to interest boys and girls in their teeth. And because teeth and gums get so little exercise, let children enjoy gum. There is a reason, a time and place for chewing gum.

P-260

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H-11-35

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ACCEPTED FOODS

This department is a useful guide in the selection of foods of quality, advertised with truthful claims. All products in this section as well as any others advertised elsewhere in HYGEIA stand accepted by the Committee on Foods of the American Medical Association, and are entitled to bear its "Seal of Acceptance." The foods listed here are but a portion of those accepted by the Committee. If you desire information regarding any other food product, you are invited to write to HYGEIA.

Dr. Phillips
CITRUS FRUIT JUICES
Recommended for Children
as a Source of Vitamins A, B and C

Dr. Phillips Orange and Grapefruit Juices and Grapefruit Hearts are uniformly rich in vitamin C and always full of flavor. **Tree-ripened,** they are canned fresh from the grove under the most modern scientific and sanitary conditions. Easy to serve at any time, anywhere. Get several cans today.

DR. P. PHILLIPS CO., Orlando, Florida

DURKEE'S PURELY AMERICAN VEGETABLE MARGARINE

Made entirely from American produced ingredients. Delicious. Wholesome. For cooking, frying, baking and table use.

Ask Your Grocer for Durkee's Margarine.

Durkee Famous Foods, Inc. Chicago, Ill. Norwalk, Ohio

Cocomalt
For Nursing Mothers

105 U. S. P. units of sunshine vitamin D in every ounce. Cocomalt in milk means extra carbohydrates, extra food calcium, extra vitamin.

For further facts about Cocomalt see page 1051

WHITE BREAD

An interesting set of questions and answers in booklet form. A copy may be obtained free by request to the

AMERICAN INSTITUTE OF BAKING
1135 Fullerton Avenue . . . . Chicago

PINEAPPLE AND PINEAPPLE JUICE

From HAWAII

ALEXANDER & BALDWIN, Ltd.
Honolulu, Hawaii, U.S.A.

Sales Office:
215 Market Street
San Francisco, California

TRADITIONS AND TURKEYS

(Continued from page 1000)

tradition, was brought from Denmark many years ago. The fruit stuffing takes away any suggestion of the greasiness that is often present in ducks and geese.

APPLE-PRUNE STUFFING

Soak the prunes until they are plump and tender. Cook the prunes and peeled apples together until just tender. Sweeten slightly. Cook down until there is only a small amount of juice. Stuff the goose or duck with the fruit.

Peanuts are used in the following recipe for duck stuffing as a contrast in flavor to the almost giblet-like taste of the duck meat:

PEANUT STUFFING

¾ cupful cracker crumbs
½ cupful shelled peanuts, finely chopped
⅓ cupful heavy cream
2 tablespoonfuls butter
Few drops onion juice
Salt and pepper
Cayenne

Mix the ingredients in the order given.

Because turkeys are so large, they often create a cooking problem. How much stuffing do they require? How long should they be cooked? How should they be cooked?

One pound of live weight of turkey for each guest will be an ample amount. The larger the bird is, however, the more economically it will carve. The larger the bird, too, the more stuffing in proportion will be required. For an 18 pound turkey you will need from 2½ to 3 pounds of bread, and other ingredients in proportion. About all you can do is estimate how many times larger than a chicken the turkey is and keep making stuffing until you have enough.

About 20 minutes to the pound of turkey should be allowed for the cooking time. The turkey can be put into a hot oven and seared, or it can be cooked at a constant oven temperature. If the turkey is so large that you can't cover it with the lid to your roaster, a paste of butter and flour and milk spread over the turkey will probably give the best results. When the paste is used, the turkey requires no watching or basting, and the skin browns under the paste but is not dry and hard as it would probably

EHMANN RIPE OLIVES

For the original goodness and rich natural oils of ripe olives at their best, try the Ehmann brand. These olives are tree ripened and carefully selected. Guaranteed to be free from artificial coloring matter or preservatives.

EHMANN Olive Company Oroville, California

Crisp, Crunchy and Wholesome

These crisp biscuit confections, covered with pure milk chocolate, delight young and old alike. Buy them for the children. You'll like them, too. If you cannot obtain them from your dealer send 30c for a home package of 36 logs.

Veta-Crisp Logs

BATTLE CREEK BISCUIT CO.
Battle Creek ♦ ♦ Michigan

Hurff's Tomato Juice has been accepted by the Committee on Foods of the American Medical Association. Hurff's Tomato Juice is made from carefully selected vine ripened New Jersey tomatoes, and is a dependable source of vitamins A, B and C.

EDGAR F. HURFF
Swedesboro, N. J.

HURFF BRAND

TOMATO JUICE

Excellent—LUCKY BREAKFAST FOOD—Nutritious
A FARINA—made from the CREAMY part of the WHEAT with FINE BRAN added.

For CHILDREN—Contains 0.7 per cent crude fiber which helps to counteract constipation due to insufficient bulk in the diet.

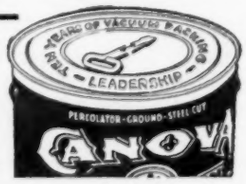
For ADULTS—Contains considerably more calories, weight for weight, than are found in eggs, white or whole wheat bread.

Accepted by American Medical Ass'n, Committee on Foods

FEDERAL MILL, INC., 400 Race St., Lockport, N.Y.

YOU KNOW—

IT SURE IS GOOD COFFEE!



What's in a Can of Canned Food?

Modern knowledge is shattering many false ideas about canned foods. Be sure to read the highly informative series of ads in HYGEIA on values of canned foods. See second cover this issue.

AMERICAN CAN COMPANY. New York City

Ox-Heart
PEANUT BUTTER
Manufactured from selected No. 1 peanuts

Same personnel have manufactured this Peanut Butter for the past 20 years, assuring a uniform quality.

All containers used are thoroughly sterilized before packing goods.

(Of course you are familiar with the high protein content of peanut butter and the various vitamins it contains.)

OSWEGO CANDY WORKS, Inc., Oswego, N. Y.

be if cooked uncovered without the paste. To cover a 20 pound bird the paste will require about 6 cupfuls of flour, from 1½ to 2 cupfuls of butter, and from ½ to ¾ cupful of milk. At the end of the period the paste may be brushed off, and some of it may be used in the gravy.

Turkey and cranberries probably went together on the tables of the Pilgrim fathers. Turkey we know they had, and cranberries, almost certainly, since they discovered them early in Massachusetts and on the Cape Cod peninsula. Since one is the perfect complement of the other, from that time forth one has scarcely been thought of without the other at Thanksgiving time.

There are many different ways that cranberries can be used. There is not one course of the meal which they cannot help form. Cranberry sauce and molded cranberries are two old favorites that will appear on thousands of tables this year. But there are other fascinating ways of preparing these berries.

Cranberry juice cocktail, for instance, may usher in the meal. And it takes a good meal to live up to it!

CRANBERRY JUICE COCKTAIL

4 cupfuls cranberries
⅔ cupful sugar
4 cupfuls water

Cook cranberries and water until all the skins pop open (about five minutes). Strain through cheesecloth. Bring the juice to the boiling point, add the sugar, and cook until the mixture has boiled two minutes. Serve cold. Ginger ale added to this cocktail gives it snap.

Cranberries may help form the main course of the meal in cranberry jelly or relish. The relish is a king among relishes and will surely not be limited to Thanksgiving. Covered in a cool place, it keeps for a long time.

CRANBERRY RELISH

1 pound cranberries
2 oranges, pulp
1½ cupfuls sugar
Rind of 1 orange

Put the cranberries through the meat grinder. Pare the oranges, remove the seeds, and trim off all white membrane. Put the oranges and the rind of 1 orange through the grinder. Mix with the sugar and berries. Let the relish stand a few hours before serving or before storing it for future use. Pour in glasses, cover with paraffin and keep cool.

Proceeding leisurely through the main course we arrive by pleasant degrees at the salad. And it may be a cranberry salad, if you have been able to wait that long before introducing cranberries.

(Continued on next page)

"THE AVERAGE CHILD NEEDS ONE QUART OF MILK PER DAY *for normal growth and development*"

H. C. SHERMAN, Ph. D., Sc. D.
"CHEMISTRY OF FOOD AND NUTRITION"
courtesy of MacMillan Company

THIS DELICIOUS FOOD-DRINK PROVIDES *almost twice* THE FOOD-ENERGY OF MILK ALONE

DOCTORS, dieticians, pediatricians agree that growing children *need a quart of milk a day*. For milk gives the most valuable nourishment for strong bones, sound teeth, straight legs and active muscles.

Unfortunately, many children do not receive sufficient milk as part of their daily diet—either because they dislike milk—or because a quart a day, every day, soon becomes monotonous.

Doubly valuable, therefore, to growing children is Cocomalt. For not only does Cocomalt make milk delicious, but made as directed, it almost DOUBLES the food-energy value of every glass or cup of milk.

Add 5 vital food essentials

Cocomalt is rich in five important food essentials. It supplies *extra* carbohydrates which provide food-energy needed for pep and endurance. It supplies *extra* specially valuable proteins that help replace used or wasted muscle tissue—for building solid flesh and muscle. It supplies *extra* food-calcium, food-phosphorus and Sunshine Vitamin D for the formation of strong bones, sound teeth.

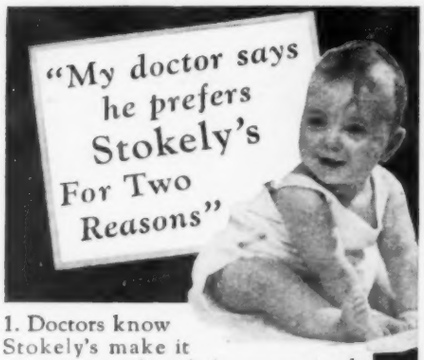
Doctors advise busy adults and convalescents to drink Cocomalt in milk every day because it is easily digested, quickly assimilated and because of its high nutritional value. A hot, non-stimulating drink, helps to induce restful sleep. Cocomalt taken hot at bedtime helps you to sleep soundly.

Cocomalt is sold at grocery, drug and department stores in ½-lb. and 1-lb. air-tight cans. Also in the economical 5-lb. hospital size. In powder form only, easy to mix with milk—delicious HOT or COLD.

SPECIAL TRIAL OFFER: For a trial-size can of Cocomalt, send name and address (with 10c to cover cost of packing and mailing) to R. B. Davis Co., Dept. JA11, Hoboken, N J

Cocomalt
Prepared as directed, adds 70% more food-energy to milk

Cocomalt is accepted by the Committee on Foods of the American Medical Association. Prepared by an exclusive process under scientific control. Cocomalt is composed of sucrose, skim milk, selected cocoa, barley malt extract, flavoring and added Sunshine Vitamin D. (Irradiated ergosterol.)



1. Doctors know Stokely's make it easy to introduce baby to strained foods—because they taste so good. 2. Doctors also know that Stokely's make it easier to transfer baby to second year foods, because Stokely's, with their naturally delicious flavor, and substantial texture, are more nearly like fruits and vegetables in the more grown-up form which baby takes the second year. ASK YOUR DOCTOR about Stokely's choice products, correctly seasoned and protected in golden enamel lined cans. Ready to heat and serve. Write for FREE booklet. Stokely Bros. & Co., 2305 South East St., Indianapolis, Ind.

Stokely's STRAINED FOODS for Baby

CRESCA *HYGEIA* FIGS
Unsulphured — Natural — Sun-Dried
Imported from Smyrna
also
CRESCA *CHOICEST* FIGS
The same kind of figs—steamed and packed in glass jars and cellophane packages. ASK YOUR GROCER
Cresca Company, Inc., 111 Eighth Ave., New York

GOLDEN STATE
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EVAPORATED MILK
California's own brand
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PURE
TOMATO JUICE
Delicious—Refreshing—Appetizing—Zestful
Brimming with Sunshine and Health
The Loudon Packing Company -- Terre Haute, Indiana

CRANBERRY SALAD

4 cupfuls cranberries
1 cupful pineapple juice
Hot water
2 tablespoonfuls gelatin
2 cupfuls walnut meats
1 cupful grapes, halved and seeded
1 cupful pineapple, diced
½ cupful cold water

Cook the cranberries in pineapple juice; then add enough water to make 3½ cupfuls. Soak the gelatin in cold water. Add the cranberries and sugar, and allow the mixture to cool. When cool, add the remaining ingredients, stir well, and chill. For the dressing, strain the juice of 1 lemon and 1 orange, and add 1 cupful of sugar. Boil the mixture and pour it over a well beaten egg. Let it boil until thick, stirring constantly. Add to whipped cream.

Now we arrive at the dessert to find either cranberry ice or steamed cranberry pudding. The cranberry ice, of course, might be used with the meat course, although something cooling, simple and low in calories seems ideal for the end of the Thanksgiving dinner.

CRANBERRY ICE

4 cupfuls cranberries
2 cupfuls water
2 cupfuls sugar
Juice of 2 lemons

Cook the cranberries with water until the berries stop popping. Strain. Add the sugar, and cook until dissolved. Cool the mixture. Stir in the strained lemon juice, and freeze.

STEAMED CRANBERRY PUDDING

1 cupful flour
1½ teaspoonfuls baking powder
½ teaspoonful salt
½ cupful bread crumbs
¼ cupful brown sugar
⅔ cupful finely chopped suet
1 cupful chopped cranberries
1 egg
⅓ cupful milk or water

Mix the ingredients in the order given. Turn the mixture into a well greased mold, cover it with wax paper, and steam for two hours, never allowing the water to come more than two thirds of the way up the sides of the mold. Turn out. Serve with hard or pudding sauce.

COMMON SENSE AND ELECTRICITY MAKE GOOD TEAM MATES

"Common sense is all that any one need use in order to keep electricity—the safest, most faithful and dependable of helpers—in its place in the home," according to the National Electric Light Association in a publication prepared by its Accident Prevention Committee. The committee presents the following rules:

1. If protective covering has failed because of wear and tear, because of defect, or has temporarily become ineffective due to watersoaking, a dangerous shock may be received by a person with hands wet or damp who touches a metal socket, electrical appliance or anything

Cranberry time is here.
Cranberries are far more than the "trimmin's" of a meal. True they add color to the table and zest to the appetite — they also furnish vitamins A and C to the diet. See page 1053 for free pamphlets on food value of cranberries
EATMOR CRANBERRIES

OLD ANTIQUE
Pale Dry
Ginger Ale ◆ ◆ ◆
Clear and bubbling, zestful and refreshing. Old Antique is a ginger ale that will please you. When you order ginger ale, ask for Old Antique. Keep several bottles of it in your refrigerator — to be ready when you want it. For you'll want more, once you taste Old Antique.
Made by
BLUE SEAL EXTRACT COMPANY
◆ ◆ ◆ Cambridge, Mass. ◆ ◆ ◆

JELKE'S
GOOD LUCK
VEGETABLE MARGARINE
is an improvement over nature. Write for free copy of "The Food Value of Some Margarines."
JOHN F. JELKE CO., Chicago

Mention HYGEIA when writing to Advertisers

DIGESTION "ACTING UP"?
Has your doctor advised you against coffee because its caffeine may cause digestive disturbances? Told you that *caffeine* may be giving you heartburn and other discomforts? Then it's time you learned about Kellogg's Kaffee-Hag Coffee. It's *safe*, because 97% of the trouble-making caffeine has been removed.
And it's *real* coffee; *delicious* coffee. Not *one bit* of the full-bodied flavor has been impaired. Be sure to perk it twice as long as usual. At your grocer's, or send coupon and 15c for 20-cup sample.

KELLOGG CO., Battle Creek, Mich.
Please send 20-cup sample of Kaffee-Hag Coffee. I enclose 15c in stamps.
Mr.
Mrs.
Miss
Street
City State
(61) HYT 11

connected with electricity while standing on a wet floor, taking a bath or touching radiators, piping or other plumbing.

2. Secure use of molded composition or porcelain sockets in bathrooms, basements and all other damp locations. Use wall switches where possible. Approved sockets of molded composition or metal sheath porcelain are recommended for use with extension cords.
3. Never leave electric irons on anything that will burn. Always use the metal stand or rest that is provided. Do not use lamps, irons or toasters to warm beds in the winter. Fires may be started by such misapplication of these devices.
4. Extension cords for connecting electrical household appliances or lamps should be handled carefully so as not to injure the protective covering of wires. Have cords repaired or replaced when they become worn.
5. Do not use your electrical equipment for playful experimenting or practical joking.
6. Additional wiring in your house should be installed only by a responsible electrician. Your best insurance against fire and accidents is good wiring.
7. If a fuse, the electrical safety valve, blows out, you are overloading your wiring system or using a defective appliance. The trouble is not corrected by inserting a larger fuse. A fuse of the proper size is your protection against fires or accidents. Ascertain and correct the trouble before putting in a new fuse.
8. Convenient outlets should be installed for connecting portable appliances. Screw base receptacles or outlets are no longer approved. Where they exist, equip them permanently with detachable screw base section of attachment plug or have your electrician replace them. This will prevent inquisitive children from making accidental contact with current carrying parts.
9. Place outdoor aerials to one side and not crossing over or under power supply wires. A radio aerial which has fallen against power wires is probably alive, regardless of weatherproof covering on power wires. Disconnect power supply from your radio before you do any work on your set.
10. Fallen wires on streets or highways may be alive. Avoid them. Notify the electric light and power company.

YOU OWE THEM STRONG BONES SOUND TEETH

The rightful heritage of your children is good strong bones and sound teeth. That means plenty of CALCIUM in the daily diet.

The best source for CALCIUM is milk—but because of taste prejudices, many do not drink enough milk daily to supply the body with needed CALCIUM.

To these, we recommend KRIM-KO—a delicious chocolate flavored drink, made from pasteurized milk from which part of the fat has been removed and to which chocolate, cocoa, sugar, tapioca, salt and small amounts of flavoring have been added.

KRIM-KO is rich in CALCIUM. Ask your dairy for KRIM-KO TODAY!

If there is not a dairy in your town that bottles Krim-Ko, write to the Krim-Ko Company, 4830 S.Turner Ave., Chicago, Ill., and give us the name of your dairy.

Krim-Ko is chocolate flavored, sweetened, partially defatted milk (Added tapioca—salt)

KRIM-KO
REG. U.S. PAT. OFF.
•CHOCOLATE FLAVORED DRINK•

Try HEINZ Double-Sure Strained Foods for Baby

You know Heinz quality in foods. You can have this same high standard in strained foods for baby. Insist on Heinz.

Send for valuable baby diet book featured on page 1054.

H. J. HEINZ COMPANY
Pittsburgh, Pa.

BREAD FOR FOOD ENERGY

Give your children plenty of good, wholesome baker's bread. It does double duty by satisfying their lusty appetites and supplying the food-energy growing youngsters need. See third cover for facts about bread.

Mention HYGEIA when writing to Advertisers

Fresh CRANBERRY SAUCE
is Nutritious and
DELIGHTFULLY APPETIZING

In addition to being a good source of Vitamin C, Cranberries also contain an appreciable amount of Vitamin A. Iodine is likewise present. Moreover, cranberry sauce, containing sugar, has a high calorie content.

Cranberries also provide stimulation to the appetite by reason of their zestful tartness and pleasing color.

A pamphlet detailing the food value of cranberries mailed free Address Dept. MP

AMERICAN CRANBERRY EXCHANGE, 90 W. BROADWAY, N.Y.C.

Eatmor Cranberries

FEED BABY THESE DOUBLE-SURE (57) FOODS

Only Heinz Strained Foods bear both of these symbols of assured quality standards. No. 1—the Seal of Acceptance of the American Medical Association's Committee on Foods. That means that Heinz Strained Foods have been *officially* accepted by the Committee on Foods of the American Medical Association. No. 2—the famous "57" Seal, known and respected for 66 years. This means that Heinz Strained Foods have passed the rigid quality standards of America's most careful and conscientious preparer of foods.

Only sun-ripened vegetables, hours-fresh and grown under expert supervision, are prepared, cooked and strained in Heinz kitchens. The most modern, scientific equipment, which enables cooking and straining with high retention of vitamins and minerals, is used in these processes. Then, quickly, the strained foods are *vacuum-packed* in enamel-lined tins.

Try an assortment of Heinz *double-sure* Strained Foods Your baby will eagerly accept their fresh natural color and flavor. In them he will receive a uniformly high quota of vegetable nutrients. And *you* will be relieved of those tedious cooking operations. Your grocer has Heinz Strained Foods.

9 KINDS—1. Strained Vegetable Soup. 2. Peas. 3. Green Beans. 4. Spinach. 5. Carrots. 6. Tomatoes. 7. Beets. 8. Prunes. 9. Strained Cereal.

VALUABLE BABY DIET BOOK Many up-to-date authentic facts regarding vitamins, minerals and other nutrients in various foods. And a wealth of information on infant care and feeding. Send labels from 3 tins of Heinz Strained Foods—*or* 10 cents—to H. J. Heinz Co., Dept. H211, Pittsburgh, Pennsylvania.

HEINZ STRAINED FOODS

MODERN DOCTORS FOR MODERN BABIES

(Continued from page 1025)

the father or mother feel somewhat uncertain, to whom should they turn for advice? Not to the next-door neighbor who has raised a large family of children and not even to the baby's grandparents but always to the baby's doctor. Even though the question seems trivial, almost absurd, should the physician be consulted? Most certainly! It is always best to make sure a procedure is correct or a condition perfectly normal before it is too late.

Is it fair to telephone the physician and ask for instructions? That depends; if a mother is to see the baby's doctor the next day the question may well wait, if it is not urgent. It should be written down with all the other things about which she wishes to ask him. It is best to have a notebook handy in which to jot down thoughts as they come and in which to write directions the doctor may give. Memory should not be relied on.

If, however, a mother is not to see the physician for a number of days or a week and she wishes advice, it will be well to telephone him, stating the problem clearly. In all likelihood he will wish to examine the baby before deciding how to answer the mother's question. Here cooperation is needed. Under no circumstances must the parents say, "Oh, that means another visit to be paid for." They should realize instead how much better it is to pay for one visit at the present and be safe than to pay for many visits later on and be sorry.

In cases where definite advice and instruction are given over the telephone they should be written down by the mother and read back for the doctor's approval. Some physicians rightly charge for such service. If a busy baby doctor is interrupted frequently by lengthy telephone calls it is often annoying to him and his office patients. If a charge is made no parents, in fairness, can object.

The most dangerous period of an infant's entire life is the first few weeks after birth. For this reason it is well to have a pediatrician take charge of the infant before he is many days old. The pediatrician is a child specialist. His services are needed from the beginning, as most obstetricians will agree. The new kind of baby doctor takes into consideration everything about his patient. He thinks not only of the home surroundings and heredity, but also of the baby's immediate future both from a mental and a physical point of view.

As the weeks slip by and the obstetrician ceases to visit the mother, the pediatrician's trained eye may detect any unfavorable changes in her physical condition. If the mother is nervous or easily tired, the pediatrician knows it will reflect on the baby. The mother has spent forty weeks preparing this child for the world. Is she now getting sufficient rest to keep herself well? Is her mental attitude correct? Is she trying to do too much for herself, for her family or even for the baby?

At first these questions may not seem to lie within the province of the baby doctor, but since he is interested in the child and his welfare as a whole he thinks of these things, even though he may sometimes hesitate to speak about them. On the other hand the obstetrician may not consider it his privilege to remind the mother of facts which she may know but be apt to forget. So it really is the mother's own responsibility to make sure that she is well and stays well for the baby's sake as much as for her own sake. The period of pregnancy has brought many changes within her. The uterus has been greatly enlarged; it must now return to its original size and shape. The bands of tissue that hold the womb in place must regain their elasticity. Unless the entire reproductive system returns to normal and the transition is perfect, health will not be completely restored. Many mothers are nervous, irritable, fretful and really unfit to be good mothers because things are not just as they should be within their bodies following childbirth. Far too many women become invalids or semiinvalids for life as a result of their own neglect.

It is vitally important to have frequent and thorough check-ups made by the obstetrician following even the most easy and apparently normal delivery. Indeed the mother who "has an easy time" is the one who may be the most careless and do herself harm. She may know that a thorough examination should be made from four to six weeks after delivery, but she may not "bother" to go to the doctor's office because she may feel all right. She may realize that when the infant is 6 months old she herself should be examined again, and that when one year has passed, the obstetrician should once more make sure that all is going well, but she may put off seeing her doctor.

It is unquestionably her own responsibility, but if she fails to assume it the new kind of baby

Always Drink—
KEMP'S
SUN-RAYED
PURE TOMATO JUICE
THE SUN-RAYED CO.
FRANKFORT, INDIANA

Babies Thrive on *Carnation* MILK

Many noted baby specialists prescribe this pure, nourishing super-digestible milk — irradiated for "sunshine" vitamin D. Why not ask your doctor about Carnation Milk for your baby?

Coffee Without Caffeine

IF your doctor advises you against coffee, try Kellogg's Kaffee-Hag—delicious coffee with the troublesome caffeine removed. See pages 1052 & 1055 for offer of sample.

THE KELLOGG CO.
■ Battle Creek, Mich. ■

HIGHLAND
100% PURE
Vermont Maple Sap Syrup
Packed by
CARY MAPLE SUGAR CO., INC.
St. Johnsbury, Vt.
"The Maple Center of the World"

Saves Work for Mothers

Why go to the trouble of cooking and straining vegetables for baby when, for only a few cents a day, you can feed Gerber's Strained Vegetables? 9 foods to choose from.

GERBER PRODUCTS CO.
Fremont, Mich.

Have You Tried the New Nucoa?

As a spread for bread and for all cooking purposes, try Nucoa—a tasty vegetable margarine. Pure and fresh—and unusually economical. See the Nucoa advertisement on page 964.

You Can Depend upon These
General Foods Products
◆ *Ask for* ◆
MINUTE GELATINE INSTANT POSTUM
CALUMET BAKING POWDER
D-ZERTO JELLO
DIAMOND CRYSTAL IODIZED SHAKER SALT
SANKA COFFEE

Pet Milk—*Now Irradiated*

Adds extra amount of sunshine vitamin D to the diet. Pet Milk is pure, whole cow's milk made double rich by concentration. Additional interesting details on page 1056.

PET MILK COMPANY, St. Louis, Mo.

doctor may, for the sake of the child, request her to do so. Often a mother will be quick to respond to suggestions for better care of her infant but slow to act when the care is for herself. But this is not fair to her baby, and the pediatrician knows it. Therefore no parents should ever resent it if the physician who has assumed responsibility for the health supervision of an infant asks the mother to consult the doctor who delivered her baby, or if he suggests that she take any other steps which will assure her of improved health. It is the birthright of every child to have happy, healthy parents. The new kind of baby doctor is anxious that none of his little charges shall be robbed of this birthright!

ACCEPTANCE SEAL

The Seal of Acceptance of the A. M. A. Committee on Foods assures the purchaser:

"(a) That the food article, its label, all related published or displayed advertising copy of any nature, statement of physical and chemical composition, process of manufacture, and other pertinent required information, have been submitted to the Committee for its consideration.

"(b) That all 'health' or nutrition claims—either specific or by inference, appearing on package label, in any advertising copy, or published or displayed in any other form—harmonize and are in accord with the evidence submitted as to the chemical and biologic value of the finished product on the market."

▼ CALCIUM ▼
IN DIETARY FORM

Plus
PHOSPHORUS
and the
MINERALS of Milk
with the Lactose to Insure Assimilation.

Derived entirely from milk.
Milk furnishes the most assimilable form of calcium.

MILK MINERALS CO., INC.
New York-Chicago-San Francisco

Drink Krim-Ko* for Calcium

A delicious beverage, rich in bone and tooth building calcium. Children drink Krim-Ko without coaxing. See page 1053 for additional information on Krim-Ko.

* chocolate flavored, sweetened, partially defatted milk (added tapioca—salt).

KRIM-KO CO., 4830 S. Turner Ave., Chicago

MALTEX CEREAL

a hearty, nourishing breakfast dish with a flavor you'll love

Maltex Cereal combines two wholesome grains, barley malt and wholewheat, from which coarse bran is removed. It has high food value, is a good source of vitamin B, and its delicious flavor is relished by children and adults, alike.

The Maltex Co., Inc., Burlington, Vt.

CLOVERDALE
Pure Mountain Water
Sparkling

Wholesome and invigorating—comes from the lofty mountains of Pennsylvania. Used in making Cloverdale Sarsaparilla and Cloverdale Ginger Ale—both Pale Dry and Amber.

CLOVERDALE SPRING COMPANY
Plant: Newville, Pa. Office: Baltimore, Md.

PLEASE SEE PAGE 961

BABY ON THE WAY?

Has your doctor advised you to give up coffee until the baby comes? Told you that the *caffeine* in ordinary coffee may be bad for heart, nerves and stomach? Then you'll probably welcome the news that there *is* a coffee that can safely be taken—Kellogg's Kaffee-Hag.

It's the most delicious coffee you ever tasted, but 97% of the troublesome caffeine has been removed. Be sure to perk it twice as long as ordinary coffee. At your grocer's, or send coupon and 15c for 20-cup sample.

KELLOGG CO., Battle Creek, Mich.
Please send 20-cup sample of Kaffee-Hag Coffee. I enclose 15c in stamps.

Mrs. .....
Street .....
City .....State .....
(68) HY B11

So far, so good!

AT the end of the first year—sound teeth, straight bones, firm flesh, bounding vigor. Accident? No, safe, wholesome, easily digested food—Irradiated Pet Milk.

As safe as if there were no germ of disease in the world—as easily digested as mother's milk—uniformly rich in the milk-food substances that growing bodies must have—extra rich in the sunshine vitamin D that makes teeth sound, bones straight and strong—those are the contributions that Pet Milk makes to a perfect first year.

And through all succeeding years, the growing child can have the same safe, wholesome food. There's no weaning time from Pet Milk. The best of food for babies, it's the best of food for children. Everywhere available, it's always the same safe, uniformly rich, easily digested food.

All Pet Milk is enriched with vitamin D by irradiation. When your child has a pint of Pet Milk—diluted with an equal part of water—which is a quart of whole, extra-rich milk—he has the equivalent of 135 U. S. P. units of the vitamin D of cod-liver oil.

And this extraordinary milk, with its extra vitamin D, costs less generally than ordinary milk, from a third to a fourth the cost of cream.

PET MILK COMPANY, 1429k Arcade Building, St. Louis, Missouri,
or Department 29k, 24 California St., San Francisco, California

Send for these FREE books

☐ Baby Book *"More Nearly Perfect—When Baby Needs Milk from a Bottle"*
☐ *"Recipes Rich in Milk"*—65 tested recipes

*Name*_____ *Address*_____
*City*_____ *State*_____
(Fill in completely. Offer limited to residents of Continental U. S.)